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MAGAZINE

SEPTEMBER 1955
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Phillips 66
PRESENTS

MILESTONES IN AVIATION

25th Anniversary of the "Sky Girls"

This year marks the 25th Anniversary of airplane stewardess service, which started back in 1930 when eight nurses first started flying for Boeing Air Transport, a direct ancestor of United Air Lines. Today, United employs more than 900 stewardesses, chosen from thousands of applicants and trained at United's school in Cheyenne, Wyoming. Approximately 10,000 stewardesses are now flying for air lines throughout the world.

First air stewardesses: In 1930, eight San Francisco nurses were assigned to tri-motored Boeing 80-A's which carried 14 passengers at cruising speed of 120 miles an hour.

Stewardess service, pioneered by United Air Lines 25 years ago, now ranks high among favored careers for women.

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Long noted for pioneering in aviation, Phillips Petroleum Company continues to perform its part in meeting the very latest demands for highest quality aviation fuels and lubricants.

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W. A. Patterson, President of United Air Lines, with Ellen Church (left), the world's first stewardess, and Libby Doyle Decker, national President of United's Stewardess Alumnae.

AVIATION DIVISION
PHILLIPS PETROLEUM COMPANY
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Phillips 66

AVIATION PRODUCTS

AIR Report
Significant Trends and News

FIRST LIGHT-TWIN ENGINE SUPERCHARGING will be offered by a new Model 680 Super Aero Commander. It will cruise 230 mph. at 10,000 ft. on 70% power. Top speed is claimed to be 260 mph. It has 6-cylinder Lycoming GSO-480-A1A engines rated at 340 hp. each for take-off and 320 hp. for continuous operation. Gear-driven blowers are used. Gross weight has been upped from 6,000 lbs. to 7,000 lbs., at which useful load is 2,750 lbs. Fuel capacity is 230 gals. and range 1,400 miles normal, 1,600 miles maximum. Price: $84,500. Deliveries are scheduled soon after January 1, 1956.

TRICYCLE LANDING GEAR FOR THE CESSNA 170 is to become a reality. A nosewheel conversion kit has been demonstrated by Metcoaire of California and the Cessna factory is expected to come out with a long-awaited tricycle production version.

BEECH HAS COMPLETED ITS U. S. AND CANADIAN JET BUSINESS PLANE tour and will demonstrate the M-S 760 four-place twin-jet to the Navy at Pensacola during the last half of September. At completion of the U. S. tour on August 28, Beech had logged 280 hours of flying, carrying 1,700 passengers 3 at a time on a heavy flying schedule. Crowded into three months, this volume of flying in 15-20-minute hops met a schedule set up on June 1. Commercial Sales Manager Leddy Greever said the airplane was not over an hour off-schedule at any city except San Antonio, where weather conditions delayed its take-off and arrival from Houston by an hour and a half. Four extra days of flying were inserted in the schedule to hop military officials at Washington, Wright Field, Omaha, El Toro and Wichita. Demonstrations were conducted at Denver with outside air temperatures at 95 degrees at that mile-high elevation and the M-S 760 made its take-offs in about 4,200 ft. as compared with 3,000 to 3,200 ft. at Wichita. Fuel consumption averaged about 120 gals. hourly on the cross-country hops between cities, these being at about 20,000 ft. and at speeds of over 300 mph.

PRODUCTION OF 50 FLETCHER FT-24 UTILITY airplanes, powered by a 225-hp. Continental engine, is planned by Fletcher Aviation at Rosemead, California following delivery of about 50 of the agricultural airplanes in kit form to New Zealand. The U. S. price is just under $25,000 for the tricycle Fletcher, which has a 1,250-lb. payload capacity and a 1,909-lb. empty weight. Convertability is featured, the airplane being useful as an agricultural applicator with a 27-cu. ft. hopper, as a cargo plane with a 50-cu. ft. bin or as a personnel carrier for six persons. CAA certification was obtained recently.

CAA TYPE CERTIFICATE 2A3 FOR 4-PLACE MOONEY MARK 20 was issued on August 24, with Calvin L. Johnston (left), CAA Region 2 aircraft engineering chief, pictured above presenting it to Hal F. Rachal (right), president of Mooney Aircraft at Kerrville, Tex., while Al Mooney, who designed it, looks on. Sales Manager Norman Hoffman will take the first production Mark 20 on a national sales tour in mid-September. With a 150-hp. Lycoming engine, the Mark 20 has a 1,000-mile range and cruises at 165 mph. —(Mooney Aircraft Photo.)

WORLD'S FASTEST NAVY

(Continued on page 40)

FLIGHT MAGAZINE

Including SOUTHERN FLIGHT and MODERN AIRPORTS

SEPTEMBER, 1955 VOL. 44, No. 3

COVER: This beautiful picture of a helicopter at work was made by Hans B. Burgunder in the Swiss Alps, where Pilot Leo Kunz in a Bell Model 47 hauled 50 tons of materials and passengers in 55 hrs. between June 28 and July 15. Take-offs were from an elevation of 2,000 ft. with landings 9 miles away at 6,000 ft., with loads up to 450 lbs. per trip, to a site for a hydro-electric station. —(Photo from Bell Aircraft.)

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GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager; E. H. PICKERING, Consultant; P. O. Box 750 (1901 McKinney Ave.), Dallas, Texas—Telephones STerling 2125

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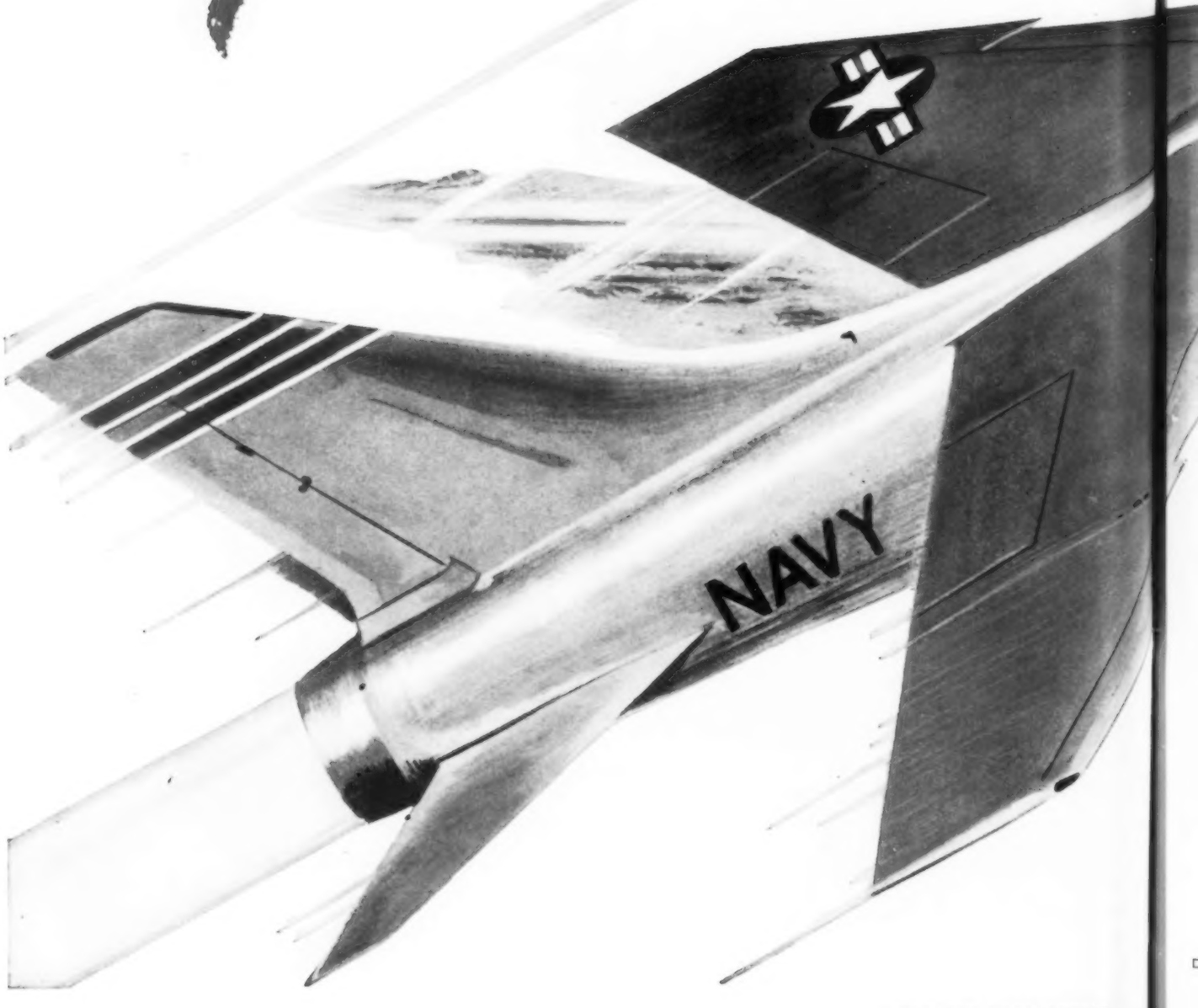
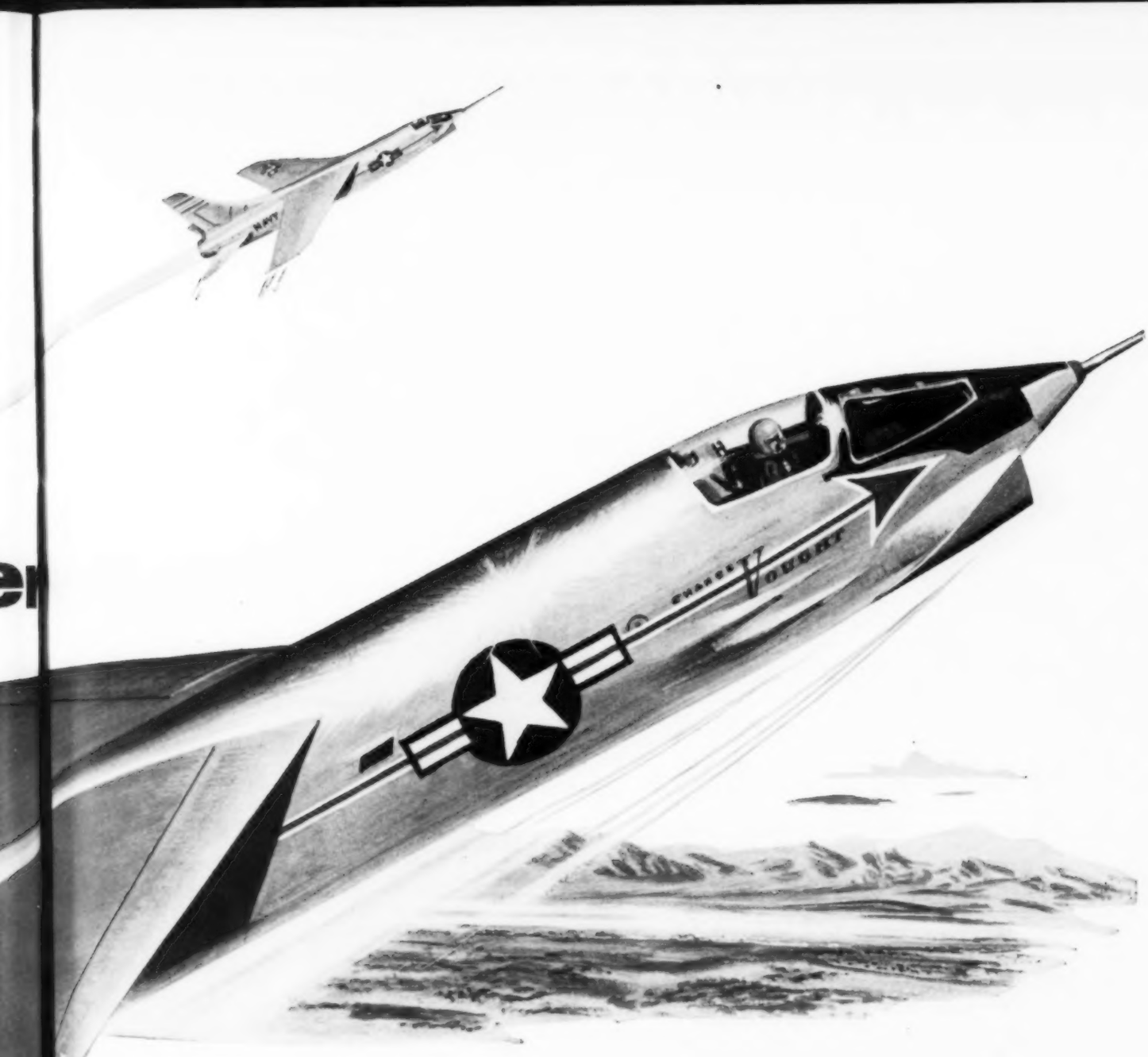
New Vought "Crusader"...

World's Fastest Navy Fighter





From Desert Testing Ground to Your New Air Navy...

From Chance Vought comes a significant advance in carrier-based fighter design — the new, faster-than-sound XF8U-1 *Crusader*.

Combining the requirements of carrier operations with flashing level flight supersonic speed, the U. S. Navy's *Crusader* gives America one of the fastest fighters in the world today.

This clean, high-wing aircraft owes its blazing speed and excellent high altitude performance to its simple, uncluttered design and tremendous powerplant—an afterburner equipped Pratt & Whitney J57-P-4 turbo-jet engine.

Latest in a long line of Chance Vought aircraft, the *Crusader*—newest star on the Nation's Defense Team—is an important addition to Your New Air Navy. *Its mission: to help keep free the seas that cover 70% of the world.*

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BIG NEW LIFT FOR AIR TRANSPORT

Production rolling on New Allison Turbo-Prop-powered Lockheed C-130 Hercules

AMERICA's first production Turbo-Prop transport – the Lockheed C-130 Hercules – is coming off the lines of Government Aircraft Plant No. 6 in Marietta, Georgia, in growing numbers.

Powered by four Allison T56 Turbo-Prop engines with a total of 15,000 horsepower, this new cargo plane can carry some 20-ton payload long distances *at amazingly low operating cost.*

With its exceptional power-to-weight ratio, the Hercules can take to the air at a 30 degree angle after a ground run of less than a thousand feet, considerably less than other planes of comparable size. Its low fuselage floor, 41 inches off the ground, provides truck-bed loading, while the adjustable tail ramp also permits vehicles to drive directly aboard.

Developed for the Tactical Air Command, the Hercules is a highly mobile, high-speed transport, able to rush men and materiels to advanced areas and evacuate wounded.

The Allison Turbo-Prop engine which powers it is the first Turbo-Prop to receive CAA certification for commercial use—a promise of early application in peacetime commercial passenger and cargo service.

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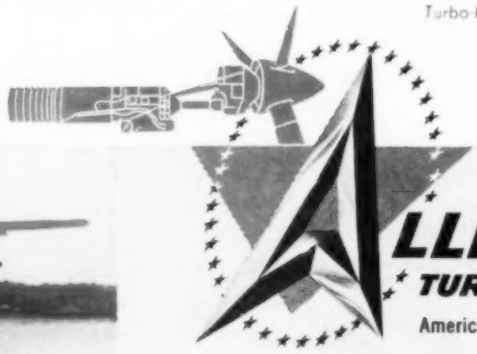

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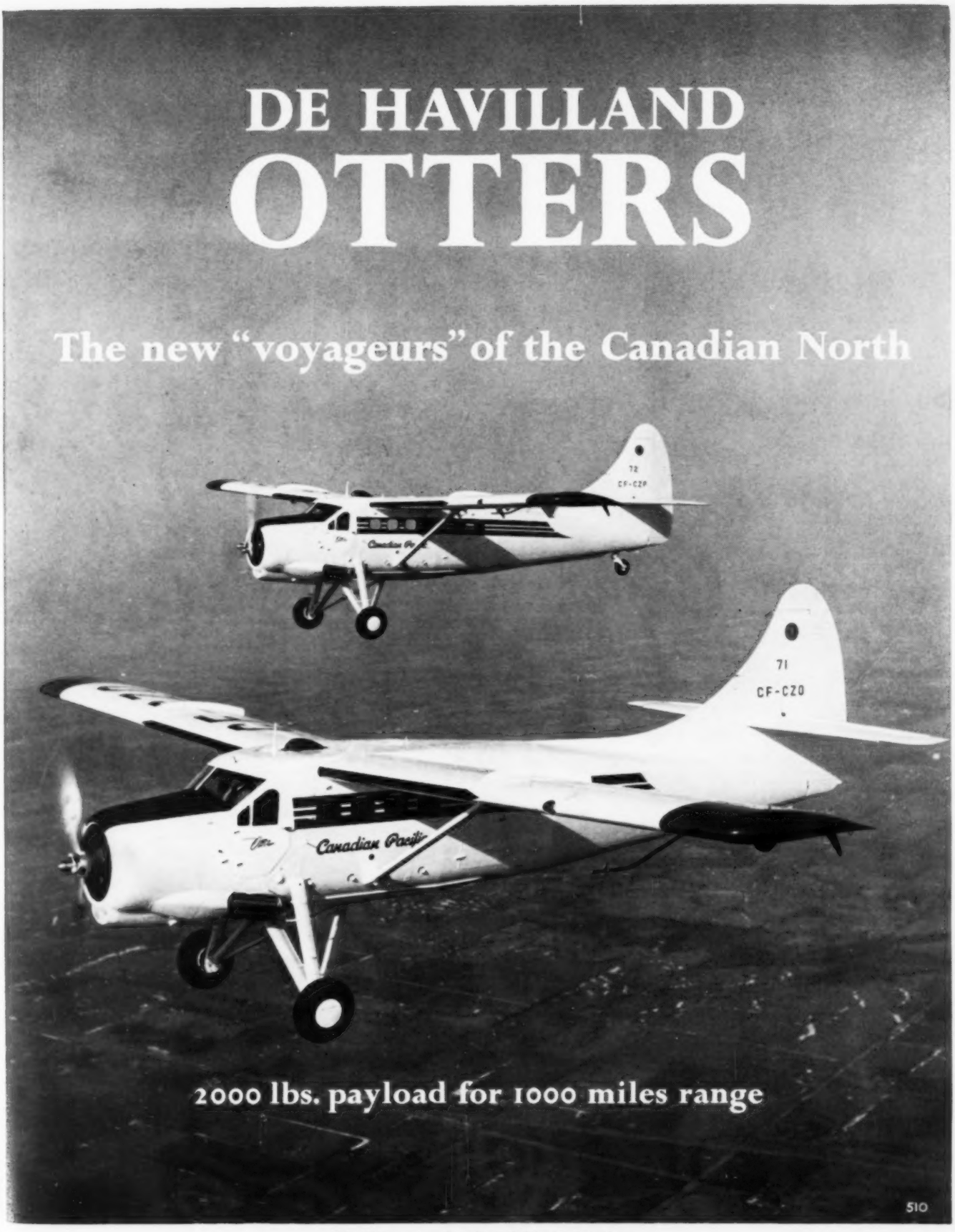

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PIPER *Super Cub*

You don't see many Super Cubs on airports... because most of them are out in the bush, hard at work flying in and out of places other planes can't go. You'll find them prospecting for uranium, checking fences, spotting strays for ranchers, patrolling power lines, hauling men and materials into unbelievably short fields.

With 150 horsepower* and high-lift flaps the 2-place Super Cub can easily take off and land in less than 50 yards, has spectacular climb and exceptional high altitude performance. Its 110 mph cruising speed makes it good for cross-country, too. If you have a tough flying job to do, let the Super Cub do it for you, economically, dependably and safely.

*90 horsepower trainer version available also.

Hundreds of Super Cubs daily prove their ruggedness and dependability in the western uranium country, proving of untold usefulness because of their ability to land almost anywhere.

PIPER
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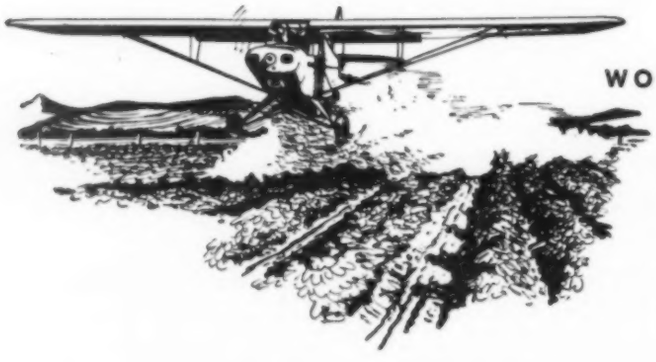
Lock Haven, Pennsylvania



WORLD'S MOST WIDELY PURCHASED AGRICULTURAL PLANE

The 150 horsepower Piper PA-18-A is available as a duster, sprayer or combination unit with 18 cubic foot (110 gallons) tank capacity. Like the Super Cub its exceptional performance lets it handle heavy loads off extremely small fields. In use in 34 countries.

Write *to Dept. F-9 for new brochure on the Super Cub and PA-18-A Agricultural plane.*

MORE PEOPLE HAVE BOUGHT PIPERS THAN ANY OTHER PLANE IN THE WORLD

Ask the men with the most experience . . .

Mr. Jenkins, shown here with a Swift 125, has been flying as a crop-duster and student instructor for nearly 19 years.

ask **Joe C. Jenkins,** crop-duster and student instructor Wyoming, Delaware

Mr. Jenkins says, "Quality aviation products are a *must* in my business, particularly with so much low altitude flying necessary for crop-dusting. I find that no other aviation oil, at any price, gives me the performance and protection of Gulf's top-quality oils.

"And when it comes to *fuels*, I think *Micronic Filtration* and Gulf Aviation Gasoline make an unbeatable combination for safe, efficient flying."

Why settle for less than Gulf quality?

If your plane is powered with a horizontally opposed or Ranger in-line engine, your best bet is *Gulfpride Aviation Oil, Series-D.* It's a detergent dispersant oil that cuts down ring- and valve-sticking, high oil consumption, oil-screen clogging, and plug fouling. Pilots who use it say it stretches the time between overhauls as much as 100%.

To get best results with a radial engine, or one that doesn't need a detergent oil, use *Gulf Aircraft Engine Oil—Series-R.* It retards sludge and carbon formation, and retains its body at high operation temperatures. Pratt & Whitney and other aircraft engine manufacturers approve it for all types of services in radial engines.

AND Gulf Aviation Gasoline . . . comes to you "refinery clean"—for your safety—from pumps with advanced *Micronic Filters.*

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Look to the team that **takes care** of the busiest landing gear **(and the "flyingest" planes)** in America!

LAST year America's civil aircraft made a record-breaking total of over *17 million* take-offs and landings.

Many of these planes were able to maintain their important on-time schedules, avoid costly delays, thanks to an unbeatable team of fixed-base and airport-service operators supplied by us with a complete line of top-quality replacement parts.

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enable LOCKHEED C-130A HERCULES
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The Lockheed C-130A Hercules – high speed, long range aerial freighter in quantity production for the Air Force – meets advanced requirements for air mobility of personnel, cargo and equipment. Its three-bladed Curtiss-Wright Turbolectric Propellers provide the most efficient means of converting engine power into useful thrust... facilitate low as well as high altitude operation, at both low and high speeds.

The Lockheed Hercules is one of an impressive list of turboprop-powered aircraft using Turbolectrics. These propellers, with one-piece extruded, hollow steel blades, feature full synchronization... full feathering by either manual or automatic means... fast reversing... single-lever power control.

Turbolectrics have been selected for many advanced long-range aircraft types, including the Douglas YC-124B and Boeing YC-97J transports, and the Boeing XB-47D bomber... also for such turboprop types as the Convair XFY-1 and Lockheed XFV-1 vertical take-off fighters... and for experimental aircraft such as the McDonnell XF-88B and the Republic XF-84H turboprop fighters.

Turbolectrics are specified for the major U. S. turboprop engines, which include the T-38, T-49, T-34, T-56 and T-40.

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Investigate Career Opportunities at Your Nearest Recruiting Office

PROPELLER DIVISION
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FIERY!

MOODBEAMS # 9

Candy Barr is firing a two-gun salute for a double-barreled reason:

(1) SAC beat its 150-day deadline with USAF jet engine overhauls and now is moving ahead with third-month production, and

(2) The shop, as usual, also is doing a great job for piston engine owners and Sept. 21 will join Pratt & Whitney Aircraft in a gala Engine Forum at Dallas.

P.S.: Candy will be at the Forum party — all green-eyed, blond-haired, 5′ 3½″, 122 lbs. of her!

Southwest Airmotive

COMPANY

LOVE FIELD ☆ DALLAS

Just among ourselves

EDITORIALS

Time To Take Inventory

THE approaching winter months in all probability will see a marked increase in flight operations as compared with any previous peacetime winter season. Superimposed upon an ever-expanding scheduled airline traffic picture is the accelerated military build-up resulting from unprecedented air power appropriations that started with the Korean War years, not to mention the constant healthy increase in executive flight operations as business flying continues its amazing upward trend not only in more and more aircraft numerically but also in increased utilization hours of the older fleet.

We might as well face it — our air navigation facilities in and around many busy terminal cities have reached the saturation point in bad weather operations. At the risk of being called alarmist we hazard the guess that what we called near-misses last year might easily become hits during the winter months just ahead. Should several catastrophes actually occur the entire commercial aviation industry could be painfully injured. It is high time the industry took stock of its vulnerability and tried to do something about it before disaster strikes. Too often past progress in aviation safety has been rooted in post mortem sessions. Our industry is too large, too successful and affects far too many people to do business on that basis any longer.

But the $64,000 question is this: How are we going to correct the present deficiencies of our air navigational system and plug up all the dangerous gaps that all experienced airmen know exist?

It is not a simple question to answer because so many agencies and individuals and special interests are involved along with antediluvian policies and divided authority at the higher levels of the Federal government. Without thinking, a lot of people categorically lay the blame on the Civil Aeronautics Administration. This blanket accusation just won't hold water now that the Bureau of the Budget tells the Department of Commerce how much money it can ask for each year and the groundlings in the Department of Commerce proceed to tell the CAA not only how much of the pie they get but where the money must go. Example: When the CAA request for 1956 fiscal year funds went to Commerce earlier this year the CAA budget people included funds for the Federal aid airport program. Commerce officials ordered out the airport money because the present administration is opposed to the program. It required an act of Congress to get the Federal aid airport program back in the budget.

A review of recent CAA appropriations also reveals the on-again, off-again, hand-to-mouth, year-to-year, short-range, short-sighted program planning forced down the CAA's throat. Here are the funds appropriated for the various fiscal years as listed under establishment of air navigational facilities (EANF):

1950 . . .	$37,450,000
1951 . . .	19,000,000
1952 . . .	10,500,000
1953 . . .	9,950,000
1954 . . .	7,000,000
1955 . . .	5,000,000

For the past four fiscal years, obligations of operating and maintaining our Federal airways system have remained approximately constant at around $80,000,000 annually. In the face of steadily growing traffic of all kinds and the mixing of jet military traffic with unprecedented civil traffic it just doesn't make sense. The CAA people involved are the first to admit it. They are not to blame for the situation despite the fact that full responsibility is theirs.

The costly development by the military of the TACAN system under extreme secrecy, a system that's competitive with the established VOR-DME system of air navigation, perhaps points up the confusion in our national air navigation planning more than any other one situation. After much bitter debate the military recently decided to explain how TACAN works.

The new and admittedly experimental system cost many millions of dollars. During the period of TACAN development the CAA has been receiving a paltry million a year for air navigation development despite the fact that some of the nation's keenest technical brains and experienced personnel work at the CAA's technical development center with a long record of practical accomplishment. Could it be that the military services get everything they ask for under the delusion that the word "civil" in the CAA title has nothing to do with national defense? We think so.

One thing is certain — the whole confused mess is rapidly coming to a head. Every dedicated airman and sensible aviation trade group is deeply concerned that overlapping authority, overlapping development and military intrusion into the traditional air space control by CAA might bring about total chaos.

The time has come to tie all the loose ends together and if the Air Navigation Development Board can't do it, the entire problem should be opened up in the next Congress.

Misnomer

HARDLY a week goes by that you fail to pick up a newspaper and read in big, black headlines about an "airman" bludgeoning an elderly widow, killing a cop or going berserk and shooting three or four persons.

The headlines never fail to use the word "airman." As a consequence the term is almost synonymous with crime in the general public mind. By devising the term "airman" the Air Force used a bit of clever psychology in hopes of making its many jobs for ground personnel more attractive to

(Continued on page 38)

ARMY AND AIR FORCE H-21's TAKE TO THE AIR IN CIVIL DEFENSE EVACUATION

121 Top Ranking Government Officials Rapidly Moved To Safety During OPERATION ALERT—1955

At 12:05 p. m. on June 15th when the sirens sounded in the nation's capital for OPERATION ALERT — 1955, 12 Piasecki H-21 helicopters descended upon the Pentagon area to evacuate top government and military officials.

For the first time helicopters were used for a mass evacuation in Civil Defense operations. Minutes later our country's key personnel were miles from the Pentagon enroute to relocation centers.

Helicopter courier service to the Pentagon helped maintain business as usual during the three day period.

Our hats are off to the men and women of the Federal Civil Defense Administration and other participating government agencies.

We salute the pilots and crews of the U. S. Army's 509th Helicopter Transportation Company and the U. S. Air Force's 516th Troop Carrier Group who, with their H-21's, successfully accomplished this air evacuation.

We at Piasecki are proud that the Army and Air Force selected the Piasecki H-21 "Work Horse" helicopters for this important mission.

VERSATILE PIASECKI HELICOPTERS IN EXTENSIVE MILITARY SERVICE

The H-21, the only transport helicopter in service capable of carrying 20 passengers, is used for transporting combat troops and carrying loads of military equipment and supplies weighing up to two tons in Army and Air Force operations.

Operation Alert — 1955 is another typical example of the versatility of this and other Piasecki helicopters.

The operational advantages inherent in the Piasecki tandem rotor configuration are being demonstrated in the many tasks it performs under all types of conditions throughout the world. A commercial version of the H-21 will soon be available for airline and industrial use.

This new carrier is another result of Piasecki's unceasing efforts to improve helicopter performance — to build helicopters to do more jobs and do them better than ever before.

ENGINEERS NEEDED FOR:
DESIGN • AERODYNAMICS • TESTING • STRESS ANALYSIS • AIRFRAMES

Military Evacuees Board H-21 at Pentagon

H-21 Participating in Operation Alert—Philadelphia

H-21's Departing from Pentagon to Relocation Centers

Piasecki

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Look for the familiar Humble sign at take-off or destination—it's the sign of dependable products for your aircraft.

Humble fuels and lubricants are continuously improved by continuous studies of aviation requirements.

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The CHAMPION
Wing span. . 35′ 2″
Csg. speed. 105 mph.
Cont'l . . . C90-12F
Load . . to 775 lbs.
Climb . . . 800 fpm.
Ldg. speed . 44 mph.
Built by Champion Aircraft Corp.
Holman Field, Saint Paul 1, Minnesota

Champion Aircraft specified *GLIDAIR* for finish quality, service and performance

Designed and built for all-duty flying, the Champion is a dependable, low-cost plane for sportsmen, dusters, farmers and ranchers. Ability to land and take off under rugged conditions, its high visibility, sure power and fast climb with a full load, make the Champion the ideal light plane for business, service and pleasure flying.

All exterior surfaces of the Champion are finished and protected with Glidden GLIDAIR cellulose acetate butyrate dopes which offer maximum flame resistance, good tautening and weathering characteristics. GLIDAIR Finishes are specified for all interior and exterior surfaces because they exceed Champion's exacting product-finish requirements . . . are available for prompt delivery . . . and are backed by thorough technical service which has helped insure efficient, economical aircraft production.

GLIDAIR can answer your needs in specification finishes for all interior and exterior surfaces . . . both fabric and metal . . . on civil or military aircraft. For more complete information, contact your local GLIDAIR representative or write:

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GLIDAIR

Enamels, Varnishes, Primers, Clear Dopes and Reducers, Pigmented Dopes, Lacquers and Special Products.

Here's the team that is Walston Aviation, which will gross over $2,000,000 in 1955. From left to right are Salesman John Harris of Centralia, Illinois, Gene Tumbleson, President M. D. Walston, Salesman Howard Fricke, Sales Manager E. P. Bright, Manager C. R. Burt of Capitol Aviation at Springfield, Manager John Logsdon of Interstate Airmotive at St. Louis, Secretary Zena Creamer and Salesman James Farrell of Interstate Airmotive at St. Louis. —(Walston Aviation Photo.)

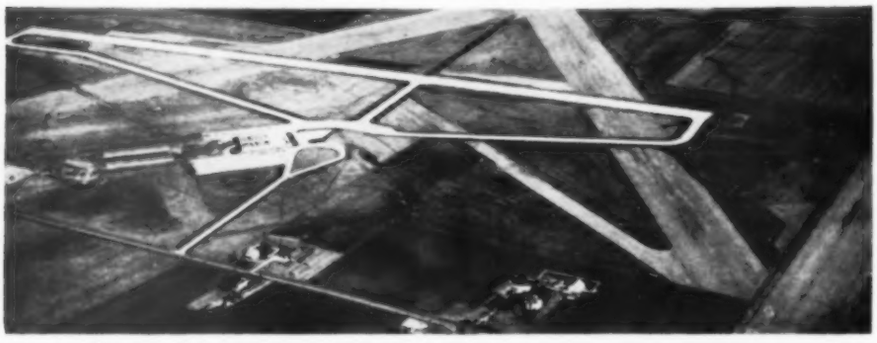
Cessna's Top Distributor

How Walston Aviation rose to first position in sales among Cessna outlets

By GEORGE E. HADDAWAY

ONE of commercial aviation's most remarkable success stories of the postwar era is that of Walston Aviation, Inc., for the past couple of years the leading distributor of Cessna airplanes.

Located at East Alton, Illinois, near St. Louis, a territory generally conceded to be only average for airplane prospects, Walston Aviation grossed $750,000 during the first four months of 1955 and conservatively estimates a gross for the year of two million dollars. Walston has been among the top ten Cessna distributors since 1948.



The beautiful airport at East Alton, Illinois (above) was only a muddy farm field (below) when Walston started his Cessna sales after the war. He sold it to the city in 1948 and it is now an outstanding municipal airport. —(Walston Aviation Photos.)

Mel Walston, who learned to fly in 1938, set up shop on 40 acres of muddy farm land at his present site in late 1945. He became a Cessna dealer in 1946.

With $8,000 in capital saved up from a forced sale of a pre-war CPT operation at Decatur, Illinois, Walston returned from wartime service with the Air Transport Command looking for a place to light. He purchased two Steamans and two Porterfields, leased a small farm just east of East Alton, pitched a B-29 tent for his first shop and opened up an office in his automobile. In the spring of '46 he saw the possibilities of GI flight training and purchased the farm. After profitably operating one of the largest GI schools in the nation he sensed the end of the training bonanza and switched to airplane sales and service in 1947.

"They almost fired Dutch Dutton at the Cessna factory when he set me up as a distributor," Walston recalls. "My territory and facilities were a bit pitiful, I admit, but later on I convinced Don Flower and Derby Frye the territory just hadn't been worked and that with a little success I could

build the kind of facilities an up-and-coming airplane sales and service outfit should have. They let me stay on. In 1948 our little company ranked fifth in sales volume among the Cessna distributors."

In 1948 Walston sold the field to the city in order to get improvements and hard-surfaced runways. It is now an outstanding municipal airport expanded to 365 acres, with a 4,000-foot surfaced runway, two fine sod runways, lights and H marker. Many larger cities would be proud to boast of equivalent facilities. Yet less than 10 years ago it was a muddy 40-acre pea patch with a surplus tent and a beat-up gas truck as the main attractions.

Finance, until recently, was Walston's principal problem. At the end of the first year at East Alton his $8,000 was gone and he owed $90,000. But he was doing business and making money. "In those early days," Walston remembers, "the bankers would jump in the vault and lock the door if you mentioned airplanes."

Today, three banks solicit his business, which requires a credit line of about $250,000. He even sold airplanes to two bankers and has a substantial bank credit without collateral at several banks. He's never let a note go past due, even in the tough days when he was expanding faster than he could cover with operating capital. He admits he once borrowed from one bank to pay another on time.

Not only has he sold the bankers on lending him money, but he also has put them in the airplane finance business, which they've found profitable. He can get his customers airplane loans at 4.5 per cent.

While visiting Walston's operations to get this story we asked Mel how he did business with the factory and if they still required a bank wire every time he got a ship. He pulled out the following letter his bank had written the factory and we agreed it was about as good an index to the success of lightplane sales as one could ask for. It read:

"Mr. Walston has been our valued customer for the past 16 years. During that time we have never had reason to question his financial ability and capability of operating his business.

"At the present time, deposit accounts are maintained with us in five figure amounts. Credit accommodations have been granted on both a secured and unsecured basis in five to six figure amounts.

"All of our relationships have been to our extreme satisfaction. We wonder that if, in view of these circumstances, it is necessary that we wire you each time that Mr. Walston wishes to take delivery of an aircraft at your factory, and if it would not be more feasible, in view of the financial responsibility of his company, for you to merely forward your sight draft with the necessary attachments."

The $2 million gross business anticipated for calendar 1955 includes new and used airplane sales, airframe, engine and radio shop work, charter service, hangar and line service and flight instruction. Unlike many other leading airplane sales organizations Walston believes you still have to have a complete operation, including flight instruction. Some of his most profitable sales have been to people who had to learn to fly before or upon buying an airplane. He expects to sell each customer at least 3 or 4 times with the first sale being the most important one. At Walston Aviation they foster and follow the new owner around like a nervous parent until he buys his second or "graduating" airplane.

Regular Monday morning sales meetings are a part of the Walston success story. These meetings were instituted several years ago when he had too many dealers and it developed into a dog-eat-dog affair. Salesmen and dealers were running into the same prospects with price-cutting competition playing havoc with profits. The sales meetings were started as a clearing house, each dealer or salesman listing his prospects for the purpose of being protected for 60 days. If no sale were consummated in that time the protection was off. Arguments were settled by figuring out an agreeable split. This arrangement helped by

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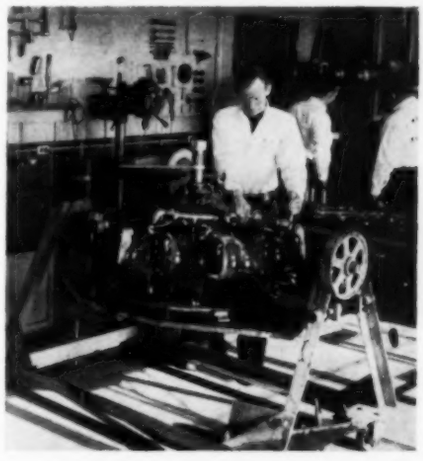

As Cessna sales leader, Walston got the first Cessna 310 Twin (above). His facilities include complete service and overhaul shops (right). Walston sales, flight, service and office staffs are shown below. —(Walston Aviation Photos.)

Landing at 100 mph., the M-S 760 is pictured above just before touchdown. The take-off shot at right shows the airplane about 20 ft. off the runway and some 4,500 ft. from the start of its run, with air speed at this point about 110 mph. Main wheel doors are just closing. (FLIGHT MAGAZINE Photos.)

Jet Demonstration

Interesting highlights from Beech demonstrations of the twin-jet 4-place Morane-Saulnier 760

By TOM ASHLEY

HOW many jet business planes would be ordered if they were available may or may not remain an unanswered question for Beech Aircraft Corporation, even after it and its distributors finish demonstrating the beautiful little French Morane-Saulnier 760 this month. But nationwide demonstrations have moved Beech and a lot of people off dead center on the matter of jet interest and those who got their feet wet in the process can be expected to take additional steps in making jet business flying a reality.

Our introduction to the M-S 760 came about half-way through the Beech tour. It was a thrill to ride in the world's first 4-place, twin-jet, Mach .8 business plane and to note how well it and its equipment were standing up under a gruelling day-in-day-out operational beating. But it was also sobering to realize that this pioneering airplane was designed and built not in the proud and fabulously prosperous aircraft factories of America but in the aggressive shops of struggling French aeronautical engineers.

There was plenty to admire about the M-S 760 but this excellent airplane was not designed to American commercial needs — it is actually a military prototype and the one and only of its design instead of a production model. If Beech does produce jet business planes or even jet military trainers, it may be that the basic M-S 760 design will be so Americanized that it will bear little resemblance to the demonstrator. Too few orders are expected to produce a facsimile 4-place twin-jet business plane selling for $300,000, which is the price Beech has estimated for a production model.

Instead of the M-S 760's two 880-lb.-thrust Turbomeca Marbore engines, range of well under 1,000 miles at a 294 mph. cruising speed, an American production version would more likely feature engines of at least 1,200 lbs. thrust, range of at least 1,200 miles with a reserve and cruising speed up around 350 mph. This, with a pressurized Twin-Bonanza cabin as the minimum size for comfort and roominess, would make a very attractive business plane.

But such speculation proves a poor substitute for the M-S 760, which is not only already flying but is, as Beech guests learned in flights at many American cities, a very remarkable airplane just as is. Most of these flights were 15 or 20-min. affairs, made at weights considerably under gross with a refueling after every third hop. A hard-working crew of French mechanics and a generous supply of spare equipment including complete power packages helped keep the airplane going under a terrific schedule.

By early August, Beech had logged about 240 hours in its demonstrations. Fuel consumption had totaled about 42,000 gals., averaging 175 gals. per hour, including ground time, take-off and climb, cruise, letdown and landing.

We went to the factory with Friend Fred K. Dick for our hop, which was about the average as flown by Vern Carstens, Allan Raines, and Tom Gillespie of the Beech staff and Jean Cliquet of the Morane-Saulnier team. While hundreds of persons have en-

Waist-high jet engines in the M-S 760 are seen from the rear with empennage removed.

joyed these hops, here's a brief run-down on what the average demonstration consisted of for those who have not had the opportunity:

TAKE-OFF: There's no run-up but, during the slow acceleration after the throttles are eased open, there's time to check for 22,600-rpm. maximum engine speed, 650-degree maximum tail-pipe temperature, and generator operation. Until rudder effectiveness comes in at about 50, nose steering is used and the nose is lifted at 80 mph. with the airplane being flown off at about 100 mph. This is some 29 to 31 seconds after start of the run and some 3,000 to 3,300 ft. down the runway. With flap and gear coming up, the acceleration is fast and 120 mph. is indicated within 3 or 4 seconds.

CLIMB-OUT: Best climb speed is 245 mph. and it is reached at a distance some 4 miles from the runway while the climb has been held down to 500 ft. per min. after take-off. With 245 mph., the rate of climb is good for 2,000 ft. per min. Air speed drops off at a rate of about 5 mph. every 3,000 ft. in the steady climb.

CRUISE: Leveling off at 7,000 ft., the pilot throttles back to 21,000 rpm. and displays about 300 mph. on the air speed indicator for cruising speed. In our case, this figured out to be 345 mph. true. A 38-lb. wing loading gives a smooth ride.

HIGH SPEED: Smooth as silk and with no sign of strain or vibration, the M-S 760 knifes the air even better at higher speeds and the urge is to open it up. After climbing higher, those riding with us saw 360 mph. on the indicator in a downgrade with power and this trued out at 420 mph. It takes very little control pressure to maneuver at speeds of 300-420 mph.

DIVE BRAKES: Speed control, for either rapid letdowns without acceleration or emergency deceleration to kill speed as in excessive turbulence, wing-mounted dive brakes, located just ahead of the flaps, were extended in a dive with 360 mph. indicated. Trim was undisturbed and there was no pitching or other disturbance — even with feet and hands off the controls. The effect was to lose 100 mph. in only 20 seconds.

PATTERN AND LANDING: Gear and flap extension speed is 180. Until making the field is a certainty, engine speed is kept at 15,000 rpm. or more — in a go-around, thrust is slow to come by in adding power from slower engine speeds. Approach speeds

Radio racks in nose are exposed for easy access. Battery is long-life nickel-cadmium unit.

Removable ladder (left) is used for cabin access. Dive brakes (right, being inspected by Fred K. Dick) are located on upper and bottom surfaces of wing in front of flaps. Main fuel tank is in fuselage (below) and holds 260 gals., with wing-tip tanks holding 50 gals. each.
—(FLIGHT MAGAZINE Photos.)

vary from 115 to 125 with the latter preferred, tapering off to 115 on final, 105 over the fence and 100 at touchdown. Without propeller drag in such a clean airplane, this speed makes for a landing in about 3,000 ft.

GENERAL COMMENT: The above hop was light, with less than half fuel load and no baggage but with 4 occupants. However, it was a hot day in Wichita with the temperature at 98 degrees. . . . Taxiing with the canopy open, noise from the wing-root air inlets was objectionable. Turning at speeds above 20,000 rpm., as compared with 8,000 to 11,000 for larger jet engines, the little Turbomeca turbines really scream. Once the canopy is closed for take-off, however, the cabin is quieter. However, it was noiser than we had expected throughout the flight. Most of the noise came from the cabin's small refrigerating turbine.

Cabin pressurization is said to provide an inside altitude of under 10,000 ft. when the airplane is flying at 20,000 ft. However, this was seldom demonstrated because of the lack of time. It takes about 14 mins. to reach 20,000 ft. and most hops were limited to 15 to 20 mins. total. Cabin pressurization doesn't even become effective until the airplane climbs above 10,000 ft.

The cabin is about the size of that of the Bonanza, but not quite as comfortable and not as quiet.

Accessibility for maintenance is emphasized throughout the M-S 760. Typical of the thoroughness involved is the radio and electrical compartment in the nose. The top half of the nose is a one-piece cowl, hinged at the front to fold back completely out of the way and to expose the equipment.

A 24-volt nickel-cadmium battery of French make is good for 1,000 engine starts. The French crew told us it was holding up well and has never yet failed to furnish plenty of power whenever needed, despite the repeated starts and heavy schedule. This makes the M-S 760 a remarkable jet, for no outside power sources have been needed and whenever it is operating from a ramp, there is no clutter of equipment such as battery carts. The airplane carries about half the radio to which most executive aircraft users are accustomed.

A small baggage space behind the engines has a door which is too small for even small-size suitcases. Two of these, if they are small enough, can be tucked beneath the rear seat.

As jets go, the M-S 760 appears to have good take-off and landing characteristics, with take-off performance described as "excelling" by pilots already familiar with jets. One of these authorities is Currey Sanders, Beech distributor at Shreveport. Currey, incidentally, flew the M-S 760 from Atlanta, Georgia, to Shreveport on July 29. Airline distance of this trip is about 550 mi. Here is his interesting comment on that cross-country flight:

"Our trip was made at an altitude between 20,000 and 21,000 ft. but, in spite of this height, I found it necessary to detour off course approximately 100 miles to avoid some violent build-ups which were at least 20,000 to 25,000 ft. higher than the elevation we were flying. In other words, it was a pretty stinky day as far as thunderstorms were concerned. Despite these conditions and the detours we made, our block-to-block time from Atlanta to Shreveport was 1 hour and 45 minutes, which included a pass over the airport in Shreveport on arrival. We used 260 gals. of fuel, arriving with 100 gals. left. The little airplane was very pleasant to ride in at that altitude, although the navigational equipment in the aircraft and other radio could have been better. I feel that if Beech were to manufacture this airplane they could certainly improve it considerably, While only a few people could be expected to order the present configuration, we were impressed and it has started a trend of thought looking to the future."

We were told by Hook Gaston, Beech field representative, that Jean Cliquet, the French pilot, made a block-to-block time of 1 hour and 18 minutes from Chicago's Midway Airport to Omaha, an airline distance of about 430 to 440 miles.

Aileron rolls have been demonstrated to numerous pilots in the M-S 760. It was originally designed as a trainer and has impressive aerobatic characteristics.

The French mechanics who service the little jet never hesitate to change engines because it is so simple to do.

Incidentally, the Turbomeca Mar-

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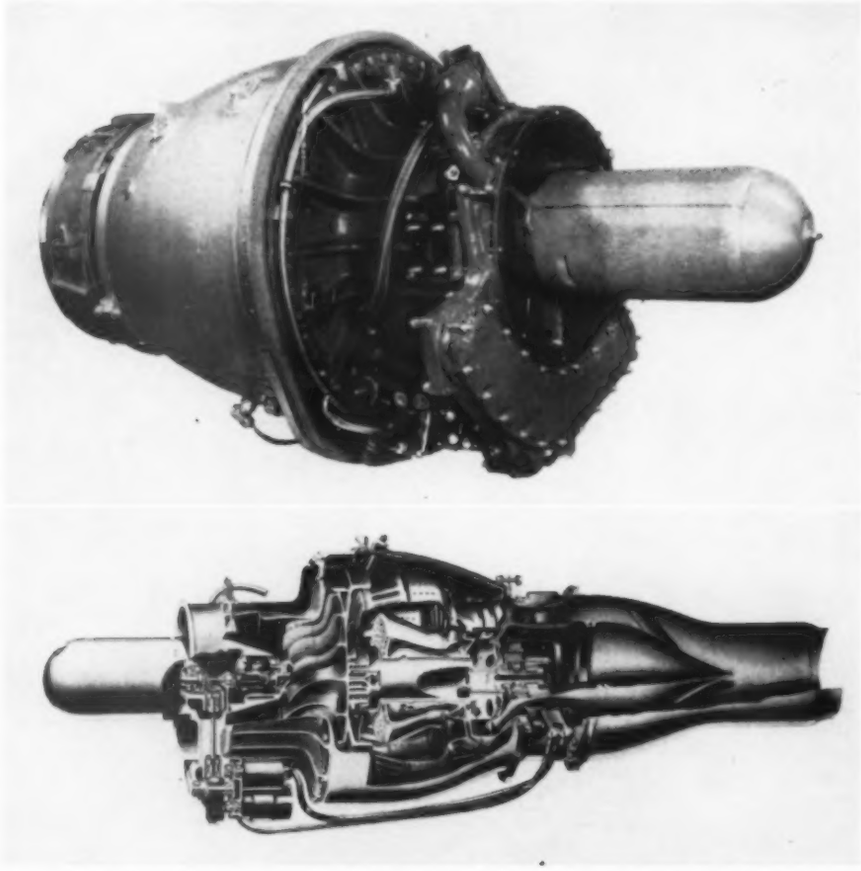

Here is the Americanized version of the Turbomeca Marbore 2 jet engine which powers the M-S 760. Continental Aviation & Engineering Corp., Detroit, has under way an extensive production program for improved military versions, designated as the Continental J69, rated 4% more powerful than the 880-lb. French engine. With a single-stage centrifugal compressor, an annual combustor and a single-stage nozzle, fuel is injected through the rotating hollow compressor shaft, fuel being slung at high rotating speed into the combustor chamber for atomization and burning. This eliminates the need for a high-pressure fuel system. American accessories are larger than those used on the French engine. Already rated at close to 1,000 lbs. of thrust, it is believed the Continental J69 will be producing upwards of 1,200 lbs. of thrust soon with more efficient fuel consumption.

—(Continental Photo and Sketch.)

"So I called Mrs. Olive Ann Beech. . . ."

WHY I ORDERED THE FIRST BEECH JET

By J. D. REED
Beech Distributor, Houston

BEECHCRAFT distributors have known for quite some time that the Beech organization was making a serious investigation into the possibility of producing a jet-powered airplane for the executive market. So it was not with surprise that we learned a couple of months ago that the Beech factory had entered into a working agreement with the pioneer Morane-Saulnier Company of France to demonstrate the 410-mph. four-place M-S 760 twin-jet executive transport prototype in the U. S. with an option to build the plane here under license.

The M-S 760, as most readers of FLIGHT MAGAZINE well know from the coverage given it, is now making aviation history on a national demonstration tour.

To be quite frank I was a bit skeptical about the U. S. aircraft industry breaking an historic precedent and importing a foreign design into this country as we have become so used to the reverse practice of licensing foreign manufacturers to build our airplanes since the earliest days. But all this skepticism flew out the window when I went to New York for the first introductory flights of the M-S 760 at Westchester Airport. It is an epoch-making airplane and in my humble opinion, after selling airplanes for a quarter of a century, an American version of this amazing French jet will find a healthy market in the United States.

After two days of demonstration in my own home town of Houston, my conviction was substantiated by the pilots and executives we managed to put into the airplane. So I called up Mrs. Olive Ann Beech at the factory and told her the First National Bank of Houston was sending her a wire announcing that we had deposited $50,000 to the account of the Beech Aircraft Corporation M-S 760 twin-jet special account. It turned out that this was the first priority order deposit received by the factory.

While the Beech company will await a complete evaluation of the national demonstration tour before announcing definite production plans, I am not in the least hesitant to state that if the airplane receives the same enthusiasm at all the stops which it received here in Houston, production is assured.

We were able to fly only one-third of the people who wanted to fly or ride in it because our time was so limited. The airplane flew nine hours the second and final day of our demonstrations, up and down, up and down, stopping only to re-fuel with pilots working on a shift basis. We permitted many of the pilots to land and take-off in the airplane even though it was their first time in a jet aircraft. In our long years of airplane sales work we never have had a more enthusiastic group of prospects. At least three "verbal" orders were cinched and they can be turned into deposit orders if and when the policy is finalized.

Typical Beech customer reaction to M-S 760 jet ride: "Boy, what a ride!" That's what Houston Industrialist Wesley West (left) is telling the author in the happy scene below.

While the M-S 760 is no cure-all or replace-all it is a necessary first step into the jet age. We already have proof of what Beech engineering and production genius can do, so any shortcomings or limitations noticed in the prototype are no different from those that show up in all prototypes. American-made engines will have additional horsepower and additional economy. I'd be willing to predict that the hoped-for production model will provide more thrust and up to 50 per cent more economy.

I am convinced that somebody is going to build this or a very similar jet transport for the American market. In the hopes that it will be the Beechcraft organization I sent the following wire to all Beech distributors immediately after putting up the first priority order. This wire expresses my confidence in the design and in Beech's ability to produce it:

Houston, Texas
August 16, 1955

To All Beechcraft
Distributors and Dealers:

We have just placed the first priority deposit on the purchase of a Beechcraft M-S 760 Twin Jet Morane-Saulnier aircraft. Mrs. Beech has placed the J. D. Reed Company's $50,000.00 deposit in the "M-S 760 Twin Jet Special Bank Account." We, the distributor organization for Beech Aircraft Corporation, working and pulling together as a team, have just completed what could go down in history as the world's most beautiful forward pass made to date in the game of private and industrial air transportation. Let me urge you all to make immediate arrangements to place your

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As photographed during the recent Paris Air Show, here's the Alouette 2 helicopter carrying a small French truck. The Alouette 2 is powered by a 400-hp. Turbomeca Artouste turbine driving a transmission with conventional tail rotor. It carries about 159-gals. of fuel (600 litres) said to be good for a 120-mile range with five occupants. Empty weight is 1,650 lbs. and gross weight is 3,300 lbs. Excellent altitude performance is attained. Turbine copters in America are still experimental, but the Alouette is offered now on the commercial market.

Copter Progress in Europe

Intense activities mark French and German comeback

By JOE MASHMAN

EDITOR'S NOTE: The author is assistant director of contracts for Bell Aircraft Corporation's Helicopter Division and a pioneer helicopter pilot who has flown rotary-wing aircraft in many parts of the world. We asked for his personal impressions on a European trip and this is his answer.

I HAVE just returned from a two-month visit to Western Europe during which I demonstrated my company's new Bell Model 47H helicopter, looked at European helicopter developments and attended the Paris Air Show as an observer. This was the third such trip in as many years for me and it was also the most interesting and most informative regarding the rebuilding of Western Europe's aviation industry.

Perhaps the most interesting development abroad is the promise of intense aviation revivals in Western Germany and France. The most fascinating helicopter developments are a couple of jet-powered French helicopters which are in production and beginning to enjoy sales with some firm orders.

The French, struggling back from war defeat and ruin, should not be underestimated. Their aircraft industry was completely nationalized but is now about 50 per cent private enterprise with the government reportedly dividing its business between state and private firms. Highly imaginative aeronautical engineers in France have devised a variety of modern experimental aircraft, ranging from light civil types through small jet trainers and small and medium-size turbine-powered helicopters to jet and piston transports and including ram-jet, rocket and jet supersonic fighters. Some are in production even though the world still looks upon the French industry as being predominantly experimental and limited mainly to prototypes. This is an error. The French are getting into production on several very promising fixed-wing and rotary-wing aircraft and they may shortly make their presence felt in the world market.

Two interesting French helicopters are the small SNCASO Djinn, which has a rotor driven by compressed air, and the medium-size SNCASE Alouette 2, which uses the more familiar turbine-transmission combination for power. Helicopter engineers in the U. S. have been experimenting with turbines and jets and rockets in helicopters for years. The discouraging fact is that they are still experimenting. But the French began these same experiments only recently and are already engaged in production and sales. They face almost certain difficulties, it is true, due to the lack of extensive proving flight experience. But they also stand to profit from the simplification which is inherent in jet and turbine power and can accelerate their research and development. This comes at a time when the trend in the U. S. is for the military to purchase only already proven designs on a so-called off-the-shelf basis. U. S. research and development is more and more becoming a long, drawn-out process during which a new design can become obsolescent before production.

The Djinn is very small, having an empty weight of 684 lbs., a useful load of 860 lbs. and a 1,544-lb. gross weight. Its Turbomeca Palouste jet engine is rated at 240 hp., and drives a compressor, the air from which is ducted up through the rotor head and out through the blades to furnish

Compressed air from this tip nozzle propels the rotor on the Djinn helicopter, which is powered by a 240-hp. Turbomeca Palouste jet.

the drive when released through a small nozzle at each tip of the two-blade rotor. Rotor diameter is 32 ft. 10 ins. It appears to be adequately powered, but actually is less spectacular than one would expect for that means of horsepower. It has a 60-gal. fuel supply, which furnishes limited endurance at cruising speeds of 44 to 62 mph.

The Djinn made its first flight in January, 1953, but is already in production with only a few thousand hours of flying experience behind it. This compares with more than a million hours of experience behind Bell's Model 47 design.

I enjoyed an opportunity to fly the Djinn and found it impressive as a small, special purpose and pioneering machine. It is simplicity itself because of its jet power. But it has some limitations which are also impressive. For example, no tail rotor is used, torque having been eliminated by the rotor-tip drive. Instead, a small rudder has been mounted on a short tail-boom and this rudder is effective because it is in the jet exhaust stream. In case of power loss, however, there is no effectiveness in the exhaust stream and consequently there is no precision directional control in an autorotation landing. In a cross-wind this would prove extremely difficult, especially in getting into a small area without damage.

I was not invited to fly the Alouette, which is powered by a 400-hp. Turbomeca Artouste jet engine using a transmission to drive a three-bladed main rotor and a tail rotor. This is a 4- 5-place machine which resembles the familiar Bell design because of its cabin, skid gear and tail-rotor gear box which are apparent copies. I saw it demonstrated and it performed impressively. It has even less flight experience behind it than the Djinn, however.

Two factors affecting jet operations handicap these French helicopters. One is dust. I saw no provisions on either machine for filtering the inlet air. Helicopters churn lots of dust beneath their blades on take-off and landing and unless filtered effectively, foreign matter can play havoc with the blades and buckets of a jet engine. The other handicap is the jet helicopter's engine performance sensitivity to hot weather. What this means is simply that an abundance of power must be provided in the design, so that the pilot will still have sufficient power under adverse conditions.

Based on experience, I would say that the French Djinn and Alouette are about where we were with the Bell back in 1943-44 from a mechanical standpoint. In offering commercial sales and production, their manufacturers are now where we were with the Bell 47 back in 1947 after we became the first to obtain a CAA commercial license for a helicopter.

The Djinn's price is quoted at about $21,000, that of the Alouette $50,000-$60,000.

There are some 75 Bell helicopters now operating in France and they are busier than ever. An Italian manufacturer, Agusta, has recently begun production under license of the Bell Model 47G and is turning out excellent workmanship. We have only

Here's the Turbomeca Palouste installation in the Djinn, showing how compressed air is piped to rotors through large flexible seal. Tank on mast is oil for rotor-head lubrication. Tank beside engine is a fuel unit.

recently established a distributor in Western Germany and on my latest trip, which included visits to Italy and to Spain (where the Spanish Navy is equipped with Bells), it was my pleasure to deliver to our new German distributor in Stuttgart our new Model 47H. It was shipped to Paris where Fenwick, our French distributor, assembled it, and I flew it to Germany from there.

My arrival in Stuttgart was immediately after the recent peace treaty which permitted Germans to fly again for the first time since the war. Losing no time, the Germans had scheduled comparative helicopter evaluations and our helicopter participated along with a British Bristol 171, Saunders-Roe Skeeter, a Sikorsky S-55, a Hiller, a British Westland S-51, an Agusta-Bell 47G, a Bell 47G-2, and the French Djinn. These were conducted for the newly-formed German air ministry. With the characteristic thoroughness of Germans, it took 3 days. Everywhere else, foreign nations accept aircraft airworthiness as licensed by the

The author (second from right) is shown at right with General Albert Gruenther (center) chief of staff of SHAPE (Supreme Allied Powers, Europe). Left to right are Ken Graham, Bell Aircraft representative in Europe; Jean Moine, foremost French helicopter pilot and chief pilot for Fenwick, Bell distributor in France; General Gruenther; Joe Mashman; and Charles de Levis Mirepoix of Fenwick.

The beautiful little French 2-place lightplane above is the SIPA Coccinelle 1,000, available with 65-hp. or 90-hp. Continental engine. Empty weight in 682 lbs., gross 1,177 lbs. Buyer of a $2,600 Coccinelle pays less than $1,200 while manufacturer gets balance from government as subsidy. It cruises 93 mph. with 65-hp. engine and 100 mph. with 90-hp. engine. Pictured below is Paris Air Show display model of the Breguet 940 Integral, a short-field VTO transport featuring "venetian blind" slotted flap arrangement for vectored slipstream and vertical take-off and landing. It is under construction, with 4 Turbomeca propeller turbines. —(Photos by the Author.)

CAA in the United States — but not so with the new German ministry. Later, when registering our 47H in Germany, they required re-certification and it proved very exacting in the smallest of details — they even did their own weight and balance work, for example, and when weights varied from CAA specifications, they wanted an explanation.

One interesting aspect of another German evaluation was the use of very sensitive sound measuring equipment. Our new Model 47H's cabin, for example, was found to register 90 to 95 "fones," a German measure on the order of the "decibels" we use. This compared with 95 to 100 fones in a diesel-powered German auto and 85 to 90 fones in a gas powered German auto, both measurements being made in the cars while traveling at 60 to 70 mph.

It turned out that our new 47H became the first aircraft to be registered by Western Germany. Other machines and fixed-wing airplanes have been acquired in recent years by German interests but all have had to be registered outside of Germany, most of them in Switzerland.

I met and hopped many of Germany's leading pilots during the evaluation and in other German demonstrations I made. One of these was Karl Bode, former chief pilot of Focke-Achgelis, the pioneering German aviation firm which produced a 1,000-hp. helicopter in the early 1940's. It featured side-by-side rotors, one installed on each side of a large cabin which could carry 5 to 15 passengers. Bode had been forced by German war defeats to take this big helicopter into the mountains and destroy it to keep it from falling into the hands of the Allies. But it was not as easily done away with as the bureaucrats imagined. "How could I destroy its huge forgings and other components?" Bode asked me in reminiscing. "Explosives just could not do a complete job of it and I had to try to bury what I could not destroy." He is now chief pilot for Bell's German distributor.

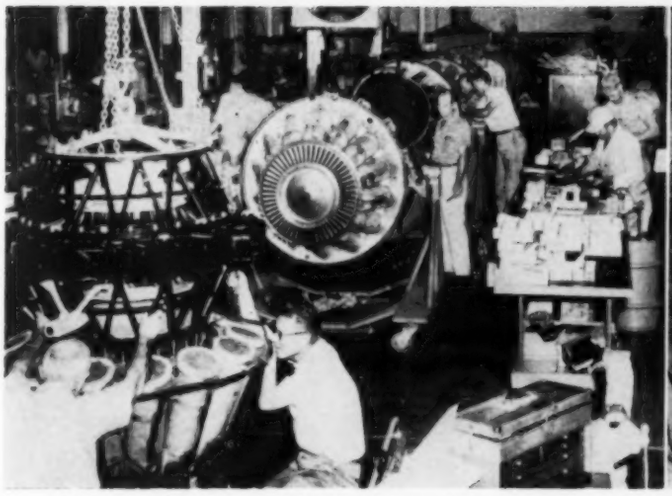
Others whom I flew included Ludwig Hofmann, who had been chief pilot of the Flettner Company. Flettner produced some 30 or 40 small helicopters before Germany's defeat. Anton Flettner now has his own company in America. Some of our readers will remember Gerd Achgelis, world's aerobatic champion of the 1930's who competed in the U. S. He is now a retired farmer in Germany and flew with me this summer.

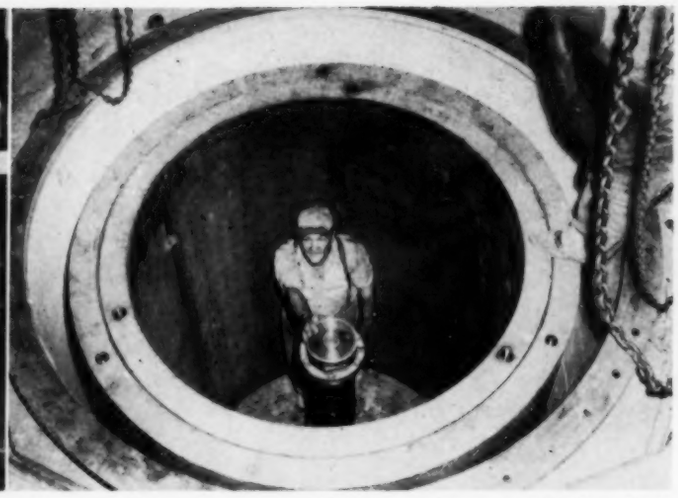
Another prominent German flying with me was Hanna Reitsch, Germany's most famous aviatrix and woman test pilot. Among many achievements, she once flew a V-1 buzz bomb (without a warhead). I understand she was the last German pilot to fly into and from Berlin in the final days of defeat, having landed her airplane virtually alongside the wreckage of Hitler's bunker only hours before he ended his misery by killing himself in defeat. Hanna flew with me on June 25, 1955, and proved just as remarkable as all the stories had pictured her. Mine was the first helicopter she had flown in 8 or 10 years, her last not having collective pitch control. But after only about 10 minutes of suggestions from me, this little 90- 100-lb. woman had mastered the Bell 47H and was just as sharp in her precision flying as anyone I have ever instructed in a helicopter.

The impression I got was that Western Germany will be an excellent market for our helicopters — until its own revived aircraft industry can produce German copters. This it will certainly do, without wasting one moment of time. One cannot visit with the Germans or fly with them without sensing the intensity of their desire to rebuild aviation as rapidly as possible. They are cheerful, extremely businesslike, very prosperous and more air-minded than ever. I visited almost a dozen cities in Western Germany. Their airports are a civic pride and joy and a center of family outings. Each has an administration building which would do justice to an American city many times larger. These buildings are not only large but are very attractive, with a club-like atmosphere in large dining rooms, club rooms, outdoor terraces and beautifully landscaped gardens.

At hangars and shops I saw them rolling out prewar lightplanes and gliders and repairing them after years of storage, many of them literally dripping with straw and fodder from their hiding places. At least one new postwar lightplane was rolled out. It reminded me of America's little C-2 Aeronca of the old days, and it has a small Volkswagen auto engine. My

(Continued on page 52)





Something new has been added to the familiar scenes in Southwest Airmotive's engine overhaul shops. On the assembly line (left) are Air Force Allison J33 jet engines. The man in the hole is readying the firm's "spin pit," in which jet engine compressors are operated at high speed. —(Southwest Airmotive Photos.)

Commercial Overhaul Shop For Jets

THE first fixed-base operator to undertake a U. S. Air Force jet overhaul contract is Southwest Airmotive, which is overhauling more than 1,200 Allison J33 jet engines for about $3,000,000.

The firm, which recently phased out piston-engine overhauls it has been performing for the Air Force since 1950, has overhauled some 6,000 Pratt & Whitney, Franklin, Lycoming, Continental and Jacobs engines in the last five years. It will continue to overhaul commercial piston engines, being a Pratt & Whitney distributor.

In a 150-day preparation period allotted to it in undertaking the jet overhaul, Southwest Airmotive followed this schedule:

1. It surveyed, selected, ordered, received, installed and put into operation hundreds of jet tools and machines.

2. It planned a production flow designed for efficiency via a complex of mechanized conveyors, with major reorganization of its existing engine layout.

3. It designed and built 25,000 sq. ft. of highly specialized brick-and-steel plant additions.

4. Twenty-five skilled key supervisors, foremen and lead men were sent through training at the Air Force's Middletown (Pennsylvania) Air Materiel Area, followed by intensive on-the-job training of other employes at its Dallas base.

5. Just before the 150-day period expired, it completed and delivered to the Air Force its full schedule of jet engine overhauls for July.

Jet teardown, cleaning, inspection, rework and final assembly departments are located in the existing 75,000-sq. ft. engine facility at Love Field, with a 15,000-sq. ft. addition being erected for a compressor spin pit and balancing department and accessory overhaul and test. A total of 80 tons of air-conditioning is necessary for equipment cooling.

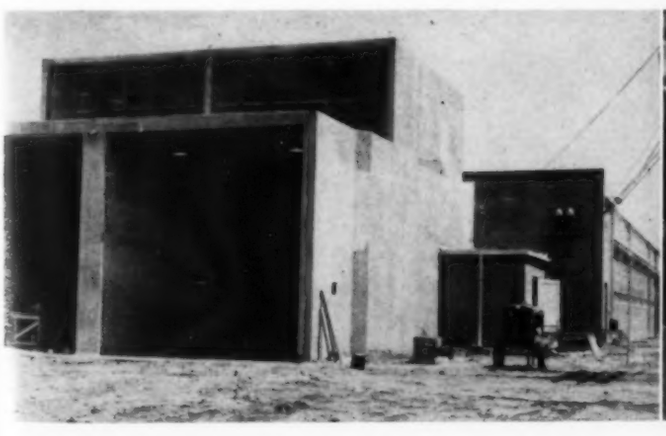
Southwest's jet engines are moved by truck from Love Field to a new two-cell test facility at Amon Carter Field, where the firm constructed a 10,000-sq. ft. building.

Approximately 350 persons are employed in the engine division of the firm at peak production. Louis Beimer and Jim Wall, in charge, report that the Allisons are "good merchandise" and that once they got into the swing of jet overhaul, they found the engines fairly simple.

"The jet age is here and jet engines have a tremendous growth potential," Wall said. "They have the stuff it takes to produce a lot of horsepower and can do the job with much less complexity than large piston engines."

★ ★ ★

Concrete test cells for jet engines have been constructed at Amon Carter Field between Dallas and Ft. Worth by Southwest Airmotive. In photo at right are some of the extensive test equipment for jet engine accessories. —(Southwest Airmotive Photos.)



fashion note:

They're slimmer this year if

Lear electro-mechanical actuators illustrated (left to right): 288 Power Unit, 413 Linear Actuator, 435 Linear Actuator, 249 Rotary Actuator, 257 Power Unit, 434 Linear Actuator. For information write: LEAR INC., Grand Rapids Division, Grand Rapids, Michigan

if you get them from Lear

Here are several of the new super-thin, smooth-silhouette electro-mechanical actuators designed by Lear to meet the severe envelope restrictions of supersonic aircraft and missiles. Lear provides high performance thin-type actuators in all load ranges—light, medium, and heavy—and for virtually every aircraft actuating requirement.

LEAR GRAND RAPIDS DIVISION

EM-C

Ryan Firebee is dropped from B-26.

Firebee continues flight as B-26 turns.

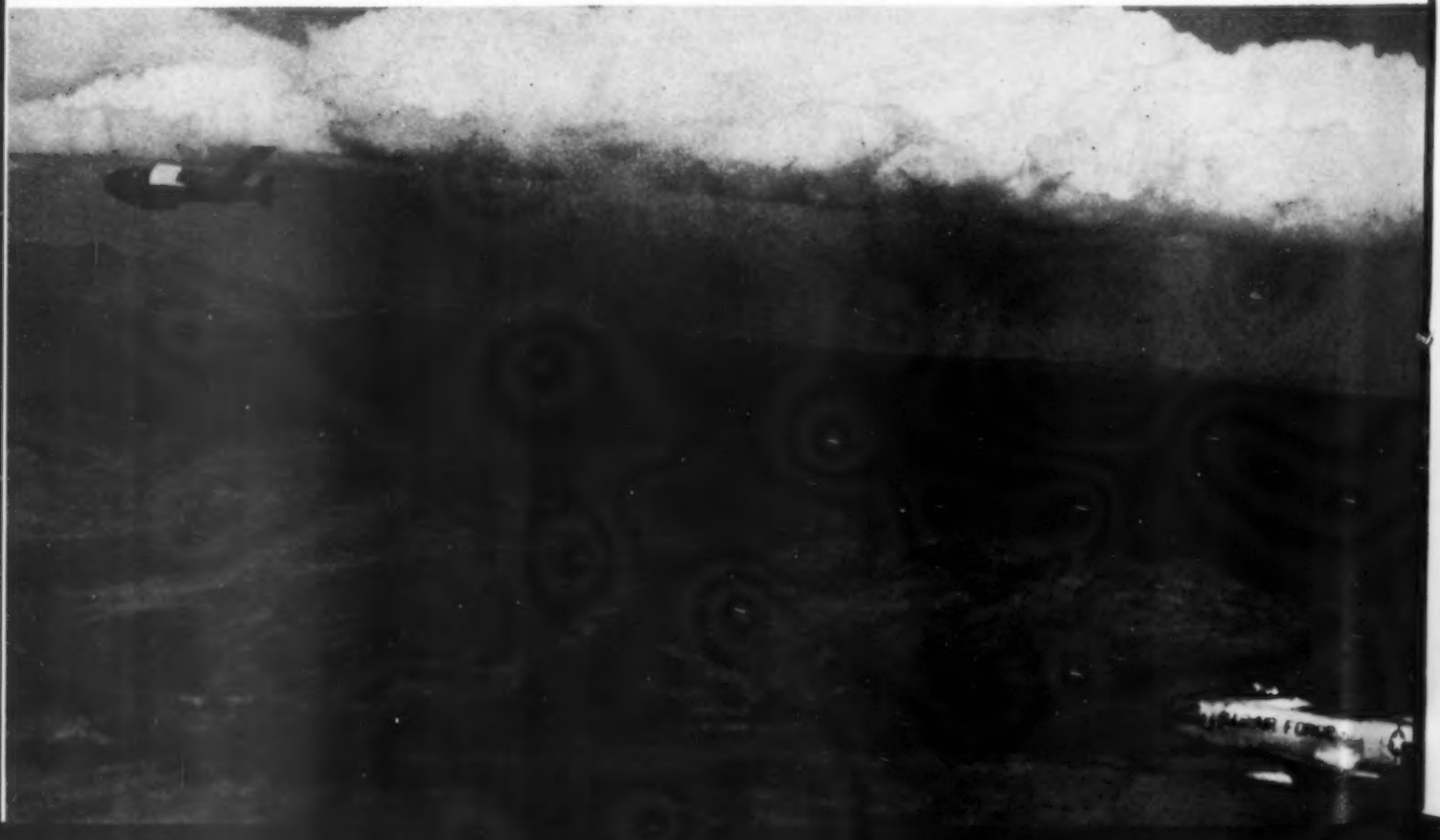
Light Jet In Action as Drone

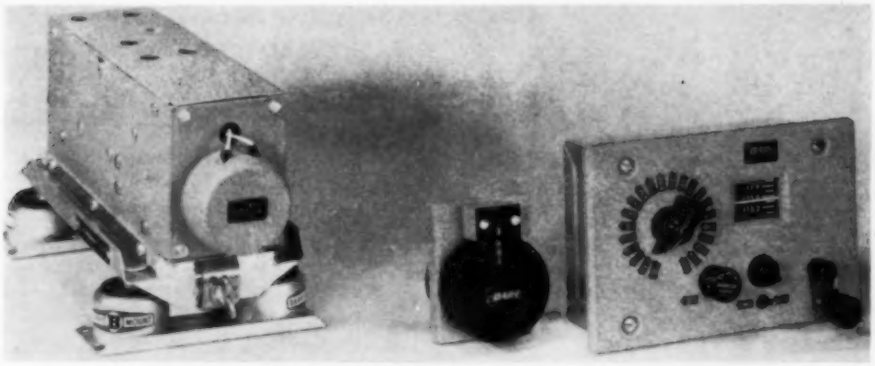
THE Ryan Aeronautical Company's Firebee's primary function of serving as a fast, elusive target drone is being evaluated by the Air Force, Navy and Army Ordnance for air-to-air anti-aircraft and guided missile gunnery training. But it is also an interesting proving vehicle for light jet engines and their development.

It is designed to fly, after air launching from a mother plane (pictured on this page), for 1 hr. 20 mins. at 575 mph. and at an altitude of 40,000 ft. It can also be ground launched, having

(Continued on page 39)

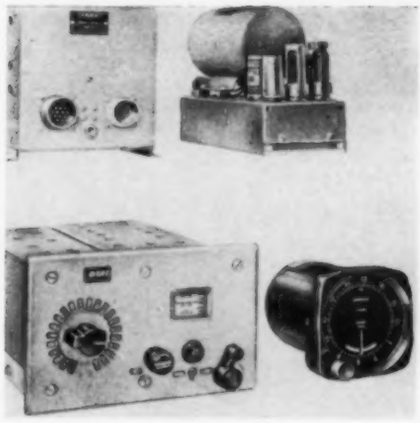
Pilot in jet "mother" plane moves in to take over control of Firebee. It is lowered by automatic parachute when hit, when fuel is consumed or by radio command. —(U. S. Air Force Photos.)





22-channel remote transmitter | Remote transmitter control | Remote transceiver control

Omni converter | Power supply



Transceiver | Nav. Indicator

Design For Service

AN enterprising firm of aircraft radio specialists at Troy, Ohio, has succeeded in developing excellent quality in several items of communications and navigation equipment for business planes and at prices which are in a medium bracket between the best of the low and high-priced equipment. This firm is the Dayton Aviation Radio & Equipment Corporation and its line is known as "Dare" equipment, most of it being pictured with this article.

One of the most interesting points about Dare equipment is that it was apparently designed by aircraft service men because it is so serviceable. The company was originally a radio service and installation organization with considerable experience. Its equipment follows the "building block" idea, with separate functional units permitting the assembly of a wide variety of VHF communications and navigation installations.

An example of the excellent planning which went into the Dare line is the fact that the modulation section of the transmitter is also the speech amplifier for the receiver and will bring the output of the set to speaker level. You can mix into it signals from other equipment and thereby use it as a speaker amplifier for all of your equipment. This one feature eliminates installation, space, weight and cost complications of extra amplifiers.

Service men comment on the good quality of materials throughout the Dare equipment. This makes for exceptional dependability. Quality materials include condensers, resistors, terminal boards, plugs, antenna connections, relays, tube sockets and tuning condensers.

A micro-tuner distinguishes the tunable Dare VHF-R-5 receiver, which incorporates a slip-proof, worm gear mechanism and a stainless steel tuning tape. It covers 108-128 megacycles and each tenth megacycle is marked on the tape. Resettability is said to be excellent. Dimensions are 3⅜ by 3½ by 7¾ ins., weight 2 lbs. 12 ozs.

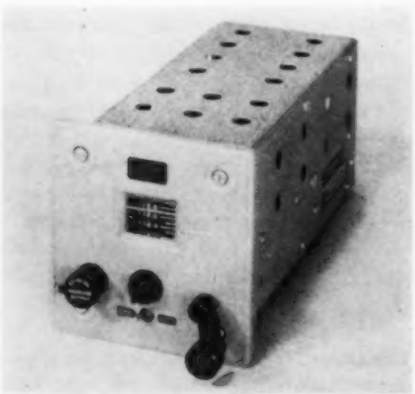
The Dare VHF-T-5 22-channel transmitter measures only 2½ by 3½ by 7¾ ins. and weighs only 1 lb. 6 ozs. and has 3 to 4-watt output from 118 to 127 mc. This transmitter actually tunes over the operating range instead of merely switching crystals. This means more uniform output over the frequency spectrum.

The Dare power supply features a rugged, quiet-running dynamotor, filter components, transmitter speech amplifier and modulator plus receiver output stage all in one compact unit measuring only 3¾ by 6¼ by 8 ins. and weighing 8 lbs. 8 ozs. This power supply eliminates the interference found in some low-price vibrator power packs.

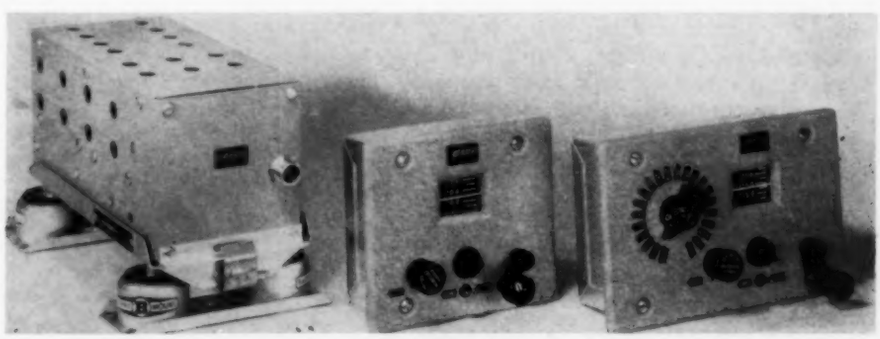
A Dare omni converter features accessibility for service adjustments without removal from the aircraft, making precise alignment possible for each installation. It translates information furnished by omni, VAR or localizer signals into reliable navigation information. Size is 6¼ by 6¼ by 8¼ ins. and weight 4 lbs. 8 ozs.

Dare has an excellent navigation indicator which combines all naviga-

(Continued on page 38)



Receiver



Remote receiver | Receiver control | Transceiver control

This Northrop C-125 tri-motor was the first one constructed and is shown on its first hop in August, 1949. After 23 had been built for Army use in establishing front-line "air heads" in lieu of gliders and for Arctic rescue work, production was stopped. Nineteen were declared surplus and two donated to schools. The other two were uncompleted and disassembled for spare parts. Frank Ambrose of Miami recently bought 18 of the Northrops and proposes to lease them for commercial operations.

For Heavy Bush Flying

SURPLUS Air Force tri-motor Northrop C-125 transports are being readied by a Miami, Florida, dealer for rough terrain work-flying in the hands of commercial pilots. Frank J. Ambrose, the dealer, bought 18 of the Northrops from surplus recently and last month began distributing mimeographed literature announcing that the tri-motors are available for lease at $2,500 per month plus a small hourly engine overhaul reserve rate.

"A revolutionary heavy cargoliner with Cub performance in and out of cow pastures and plowed fields," says Ambrose about his Northrops. "The convenience of rear ramp loading for tractors, trucks, etc., makes it ideal for exploration work, mining, power line and pipe line maintenance, uranium prospecting and the like where truck and equipment are desired. No aircraft has ever been built and probably never will be built that will have such specialized utilization with such a large load-carrying capacity with a 3-motor safety factor."

By heavy cargoliner, he refers to a modification in which one of the Northrops will be equipped with Wright R-1820-76 engines rated at 1,425 hp. each instead of the surplus airplanes' R-1820-99 Wrights rated at 1,200 hp. This, Ambrose says, will increase the gross weight from 38,000 to 45,000 lbs. At the same time, he expects to eliminate some of the military equipment and make other changes which will reduce the empty weight from 26,690 lbs. to 24,500 lbs. This would allow a useful load of 20,500 lbs.

Another anticipated modification is to install Payloader folding seats and thus make the Northrop a combination cargo and passenger airplane.

The big Northrop tri-motor is a postwar design for military operations from short, improvised fields in Army supply service, airborne assault and rescue operations. The first flight was made in August, 1949. Twenty-three were built. Recently declared surplus, the airplanes were sold and Ambrose obtained 18 of them, all having been manufactured in 1950.

The Northrops are large fixed-gear airplanes, with span of 86 ft. 6 in., length of 67 ft. 1 in., and height of 23 ft. 2 in. With their normal 26,690-lb. empty weight and maximum take-off and landing gross weight of 38,000 lbs., the 11,310-lb. useful load offers interesting work-plane possibilities.

A power-operated ramp door for direct loading of vehicles or cargo is located at the rear of the fuselage. This door is 15 ft. 5 ins. long and 9 ft. wide. The large ramp door has a smaller auxiliary door for air drops. The main cabin compartment is 39 ft. long. If used for passengers, the compartment can accommodate 16 double seats for 32 persons.

The airplane's large wing, with outer sections giving it considerable dihedral, has almost 1,140 sq. ft. of area and incorporates unique retractable ailerons. Full-span double-slotted flaps are used.

Performance includes a cruising speed of just under 170 mph. at 36,000-lb. gross weight using 70 per cent of power at 5,200 ft., and 71-mph. stalling speed with full flaps at 38,000 lbs.

Take-off distance to 50 ft. at a 29,410-lb. gross weight for unprepared, short fields is 1,310 ft., but landing distance over a 50-ft. obstacle at a gross weight of 35,400 lbs. and using wheel brakes and reverse propeller thrust is only 920 ft.

The Northrop, known as the "Raider," has a service ceiling of 15,200 ft. at a gross weight of 36,000 lbs. Two-engine service ceiling at 35,400 lbs. is 6,250 ft. Range is 2,000 miles.

Ambrose says the Northrops he bought were flown from the factory to Wichita Falls, Texas, and the air base there. Some were used for ground instruction on installation, starting and stopping engines only. Most of the airframes have under 20 hours of time logged. Time on the engines ranges from 12 to 700 hours.

The planes were constructed, he points out, in accordance with CAA requirements but were not licensed, although he understands CAA certification tests had been about 90 per cent completed when production at Northrop was cancelled. "It is anticipated that we will complete the tests and have the aircraft eventually certificated if it will be economically feasible," he adds. Operators in the United States can operate the Northrops under part 8 of the Civil Air Regulations with an NR license for their own use. Foreign operators can license them in other countries.

His lease plan is aimed at uses such as uranium prospecting, in which heavy detecting devices can be carried, eliminating necessity for ground crews, who can be carried in the airplane with jeep or truck equipped with a core drilling rig. Cargo hauling can be done into areas which do not have airports. On pipe or power line patrol, the large Northrop can land a ground crew with truck and equipment near trouble spots to make repairs. ★ ★ ★

Congratulations to

BEECH AIRCRAFT CORPORATION

Shown left to right: Mr. J. D. Reed, President of the J. D. Reed Company and Beechcraft Distributor; Mr. Jimmy S. Michael, prominent oil executive; Mr. Adolph A. Pfeffer, illustrious business and civic leader; V. L. "Hook" Gaston, Regional Sales Manager, Beech Aircraft Corporation.

The J. D. Reed Company of Houston, Texas recently introduced the latest of many famous BEECHCRAFT firsts — the M-S 760 Beech Jet — to business and industrial executives of the great Southwest.

Mr. Jimmy S. Michael's reaction, upon returning from his demonstration flight in the M-S 760, was typical of many business executives who made similar flights. He extended the hand of congratulations to Mr. "Hook" Gaston of Beech Aircraft on the unveiling of a new era in executive air transportation.

Mr. Adolph A. Pfeffer who has purchased a total of fourteen airplanes from the J. D. Reed Company, added his comment that the M-S 760 Beech Jet proves you can always depend on the Beech Aircraft Corporation to provide the most advanced design, years ahead of anything in its field.

The J. D. Reed Company is proud to be participating in the traditional leadership of Beech Aircraft Corporation. We, too, want to extend sincere congratulations to the management of Beech Aircraft Corporation for the farsighted planning in bringing the new M-S 760 Beech Jet to the business flying world.

J.D. REED CO. INC.
SALES SERVICE
Beechcraft
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Qualified Service makes the FINEST *product* FINER

The Beechcraft owner can well take pride in the fact that he owns and flies one of the finest products of the Aviation Industry. He also has at his disposal the finest national service organization that is qualified by the Beechcraft factory to maintain all Beechcraft models in factory new condition.

At Certified Beechcraft Service Stations you will find skilled and efficient Beechcraft factory trained personnel, adequate equipment and facilities, factory authorized parts and accessories plus economical prices. Certified Beechcraft Service is an additional bonus you receive when you purchase a Beechcraft.

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Truax Field, Madison, Wisc.

ATLANTIC AVIATON CORP.
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Teterboro, New Jersey
Logan Airport, East Boston, Mass.

ATLANTIC AVIATION SERVICE
New Castle County Airport, Wilmington, Delaware

BUTLER CO., AVIATION DIVISION
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CURREY SANDERS AIRCRAFT CO., INC.
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To obtain the best service for your Beechcraft visit the Certified Beechcraft Service Stations listed.

Icy Nerves

Getting in and out of a big city on a holiday weekend, of course, calls for icy nerves and a steady hand. Traffic on the George Washington Bridge, from New York City to New Jersey, soars from its daily average of 85,000 cars to as much as 134,000 and jams have developed on Route 17, the feeder line, as far as Monticello, New York, 84 miles from the bridge. C. McKim Norton, vice president of New York City's Regional Plan Association, predicts by 1970 it will take an overnight trip to reach the open countryside. Within 15 years, he said, the New York metropolitan area will be a continous tight packed section extending 40 miles north of Manhattan and 70 miles east and west.

Excerpted from a Wall Street Journal story of June 21, 1955.

Buy the Freedom of the Air for YOURSELF!

Statistics prove that corporation aircraft are more than FIVE TIMES safer than automobiles, measured by accident fatalities per 100 million occupant-miles.

BEECHCRAFT offers single-engine and twin-engine aircraft with standards of luxurious comfort equal to the finest motor cars. Cruising speeds of from 180 miles per hour to 215 miles per hour are achieved with moderate percentages of total power.

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★ ASK ABOUT BEECHCRAFT'S NEW EXCLUSIVE LEASING PLAN.

Beech Aircraft Corporation, Wichita, Kansas, U.S.A.

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

DESIGN FOR SERVICE

(Continued from page 33)

tion information in a single instrument in a standard 3⅛-in. panel cutout. Its rotatable azimuth for course selection is marked every 5 degrees, it has a left-right needle with airline-type precision, and a positive to-from indicator which is also available with a calibrated scale for use in glide slope presentation. This instrument weighs 1 lb. 8 ozs.

All of the Dare equipment is available in either 14- or 28-volt versions and all may be remotely mounted and controlled.

Suggested Dare combinations include the following:

Communications: Includes receiver and 22-channel transmitter in common escutcheon, plus power supply and two antennas. Total weight 12 lbs. 10 ozs., plus antennas and shock mounts.

Remote Communications: Remote operated receiver and transmitter, remote controls, plus power supply and two antennas. Total weight 13 lbs. 4 ozs., plus antennas and shock mounts. Total current 6.3 amps. at 14 volts.

Forty-Channel Auxiliary Transmitter: Consists of two 22-channel transmitters with staggered frequencies operated by single control head. Assures maximum safety if one transmitter becomes inoperative. Net weight 12 lbs. 9 ozs., plus shock mounts and antennas. Other combinations provide up to 200 channels.

Omni Communications: Complete VHF communication as well as VOR, TVOR, VAR and LOC navigations. Receiver and transmitter mounted in common escutcheon. Net weight 18 lbs. 10 ozs., plus shock mounts and antennas. Total current 8.2 amps. at 14 volts.

Remote Omni Communications: Complete VHF navigation and communications system with remotely operated receiver and transmitter for maximum installation flexibility. Net weight 19 lbs. 4 ozs., plus antennas and shock mounts.

Dare equipment is sold and serviced by distributors throughout the U. S. and Canada. ★ ★ ★

Airmen's Calendar

Sept. 15—Airwork Engine Forum, Sponsored by Pratt & Whitney and Bendix, Millville, N. J.

Sept. 17-18— 2nd Annual Fly-In, Antique Airplane Association, Ottumwa, Iowa.

Sept. 21—Southwest Airmotive Engine Forum, Sponsored by Pratt & Whitney and Bendix, Melrose Hotel, Dallas.

Sept. 21-22—2nd West Coast Forum, American Helicopter Society, Hollywood-Roosevelt Hotel, Hollywood.

Oct. 5-7—National Business Aircraft Association Annual Meeting, Sheraton-Cadillac Hotel, Detroit.

Oct. 5-7—National Airport Conference, Norman, Okla., Sponsored by AAAE, University of Oklahoma and CAA.

Oct. 8-15—7th Annual All-Texas Air Tour. 3,000 Miles Around the State With 42 Stops.

Oct. 11-13—ATA Annual Maintenance & Engineering Conference, Baker Hotel, Dallas.

Oct. 11-14—National Association of State Aviation Officials Convention, Baker Hotel, Dallas.

Oct. 26-28—Southeastern Airport Managers Association Annual Meeting, Poinsett Hotel, Greenville, S. C.

Nov. 8-10—NATA Convention, Hotel Westward Ho, Phoenix.

Nov. 14-16—26th Meeting, ADMA, El Mirador Hotel, Palm Springs, Calif.

Dec. 2-3—8th Annual Aviation Conference and Flight Clinic, Tucson, Arizona.

LOW-TO-GROUND FOUR-PLACE MOONEY MARK TWENTY has simplified rubber-biscuit shock struts for a tricycle landing gear which is manually operated for retraction or extension. This gear has proved itself on many single-seat Mooney Mites and is almost maintenance-free. Mooney Mark 20 has 150-hp. Lycoming engine, Hartzell controllable prop and cruises 165 mph., according to manufacturer.
—(FLIGHT MAGAZINE Photo.)

WHY I ORDERED A JET

(Continued from page 25)

distributor deposit for your own priority delivery of this unequalled, unsurpassed, and unexcelled Beechcraft M-S 760 Twin Jet. Our factory, Beech Aircraft Corporation, is in there blocking for us with all their might. So for their benefit, as well as for the benefit of our entire distributor-team, let us not drop the ball; for if we do our competitive opponents will win this all important opening game which marks the beginning of the open season for private and industrial jet aerial transportation.

J. D. REED COMPANY, INC.
J. D. REED, *President*

★ ★ ★

JUST AMONG OURSELVES

(Continued from page 15)

enlistees. Enlistees probably feel better about being called "airmen" than "GI's" or "servicemen," which they actually are. But when one of these non-fliers pulls off a criminal act the press calls him an "airman" since that's the Air Force designation. What was originally devised as bait has turned out to be poison and many a mother and father just don't want sonny boy joining up with an outfit with so many criminals around. Actually the percentage of criminal acts per capita is no greater in the Air Force than in the Army, the Navy or the Marine Corps. The tremendous expansion in the Air Force coupled with the lowering of standards in order to get personnel probably accounts for a part of the recent spectacular and gory crimes committed by "airmen."

It's time to change the name before the stigma spreads to everyone who flies — the legitimate airmen of the nation, including both civilian and

military. If a serviceman does not fly or is not a flight crew member he should not be referred to as an "airman." A stock clerk in a maintenance depot has no right to the title. Nor can you point to the Navy as a criterion in using the word "seaman." Most seamen go to sea on ships and are in fact seamen. But most U. S. servicemen designated as "airmen" never get inside an airplane!

We believe it is a real misnomer and that the Air Force should give serious consideration to the suggestion that they go back to the old rank system as a matter of sound and practical good sense. ★ ★ ★

LIGHT JET DRONE

(Continued from page 32)

a spectacular 8,500-fpm. rate of climb at sea level. It also has useful tactical possibilities as a guided missile or a tactical reconnaissance vehicle. For training, it is recovered by a two-stage parachute system operating automatically when fuel is used or when hit or by command.

The Ryan drone is 17 ft., 3 ins. long and 5 ft. 10 ins. high, and has a span of 11 ft. 2 ins. It grosses just under 2,000 lbs.

The power plant is either a Continental-Marbore J69 or a Fairchild J44 jet. These little jets are rated at about 1,000 lbs. of static thrust each at sea level.

A long period of development and testing is behind the Firebee. Navy testing is under way at Point Mugu, California, where it is known as the KDA-1. Army Ordnance has received a quantity of XM21 versions for use as targets for the Nike ground-to-air missile and the radar-controlled Skysweeper anti-aircraft gun. Air Force Q-2 versions have been extensively tested at Alamogordo, New Mexico, where an operational suitability test program on the Q-2A is now under way.

BUSINESS FLYING SAFETY TROPHY is being offered as an annual award by the Women's Aeronautical Association of Kansas. It will go to the person who, in the opinion of the National Business Aircraft Association, contributes most each year to the advancement of business flying safety. Left to right in the picture are WAAK leaders, being Mrs. Lee Higdon, Mrs. John Elliott, Miss Hazel Jacks, Mrs. O. A. Beech, Silversmith Rudolph Brom, Mrs. Adella Allen, Mrs. Ann Morton, Mrs. James Massey and Mrs. Alberta Reynolds.

Business Aircraft Topics for NBAA Meeting

BUSINESS fliers will gather in Detroit on October 5-7 at the Sheraton-Cadillac Hotel for the 8th annual convention of the National Business Aircraft Association.

A feature of the meeting, which will include the annual presentation of awards, will be a series of panel forums in which pressing problems and current aviation activities will be discussed by leaders of the industry.

On the schedule, according to Secretary Jean DuBuque, are the following panel discussions:

October 6—1. Business aircraft operators need improved airports and facilities for the plane, crew and passengers. 2. Pilot proficiency, including reviews of current airline and business operator methods to keep crews at a high level of proficiency. 3. Exchange of useful information — this will include discussion of the need for pilots to keep well informed on operational, safety and maintenance matters and consideration of methods for exchanging useful information, such as incidents including near misses, traffic violations, unsafe operations, maintenance reports, accident reports and safety suggestions. 4. Maintenance of today's aircraft, analyzing crew and operator problems, maintenance bases, suppliers and modification trends.

October 7—1. Administration of business aircraft operations. 2. Planning for tomorrow's business planes. This discussion will include review of piston engine limitations, jet and turboprop possibilities, future traffic control, navigation and the VOR-DME situation in light of TACAN developments. Another panel on this topic will discuss the value of a single-runway airport in business communities, Federal-aid airport projects, the "stratoport" design, joint military-civil use of airports and ground facilities.

As to developmental progress involved, A. T. Gregory, chief engineer of Fairchild's engine division, says a number of design changes have been made in the J44 engine to improve its reliability and performance. The missiles and drones have not needed more thrust, which has remained at 1,000 lbs., but have needed more duration of flight. A 10 per cent improvement in fuel economy has resulted from improvements. Cycle temperatures have been reduced from 1,500 degrees to 1,400 degrees.

Originally the missile requirement called for the J44 to have a 15,000-ft. maximum altitude but this was later raised to an altitude of 40,000 ft. Compressor and burner improvements — at no increase in weight or cost of manufacture — make it capable of operating now at altitudes in excess of 40,000 ft.

Considerable experience has been obtained in manufacturing some 350 of the J44 Fairchild jets to date. The engine has been flying for the last 5 years and in the Ryan Firebee for the last 4 years. Engineer Gregory doubts that the small jet will achieve as low a specific fuel consumption as larger and more complicated jet engines, at least at low air speeds. The smaller jets generally use lower pressure ratios — 2.7 to 1 in the J44. However, specific fuel consumptions at sea level static thrust conditions are still expected to be well under 1 lb. per pound-thrust-hour. At high Mach numbers, the fuel consumption of the small jet may be as good as that of the large engine since the optimum pressure ratio falls with increasing Mach number. Therefore, says Gregory, the small turbojet may be ideally suited for use at supersonic speeds.

In general, the smaller jet engines become, the simpler they will have to be. How far simplicity of design can be carried to maintain a thrust-weight advantage will depend on the ingenuity of engineers. Thrust-weight ratios well over 10 to 1 are believed attainable in the future for manned aircraft.

Thrust required for a given size airplane might be produced at lower cost with small turbojets for several reasons. First the engines probably will be simpler and this means the size and cost of experimental test and research facilities will be vastly less. The same thing applies to production facilities.

Use of multiple engines would permit efficient operation of the aircraft over a wide range of Mach numbers because the number of engines operating could be varied. Improved fuel economy and greater airplane range might be expected to result. ★ ★ ★

FIRST FLIGHT OF THE BELL XV-3 CONVERTIPLANE was made in August with Chief Pilot Floyd (Yo-Yo) Carlson hopping the tilting-rotor aircraft several times following Air Force safety inspection approval for flight testing. Carlson used helicopter controls only. First conversion flight, with airplane controls for flying with the rotors tilted as propellers, is not expected soon. Carlson said the XV-3 handled well and officials reported exceptional progress in development of the revolutionary aircraft.
—(Bell Photo.)

AIR REPORT

(Continued from page 5)

FIGHTER is the new Chance Vought description of the company's XF8U-1 day fighter. No details of performance have been released for the new plane, called the "Crusader," which is powered by a Pratt & Whitney J57-P-4 jet engine with afterburner. It is in production at Dallas.

CAMP RUCKER, ALABAMA, IS LOOKING FOR CIVILIAN PILOTS to employ in fixed-wing and helicopter training of members of the Army ground forces. For fixed-wing pilots, a basic entrance salary of $6,390 has been offered, with periodic increases amounting to $215 a year up to a maximum basic salary of $7,465 a year. Applicants must hold a valid CAA commercial license with single-engine land plane and with instrument and instructor ratings. In addition, applicants must have had a minimum of 1,500 hrs. of first pilot time in single and multi-engine aircraft and and a minimum of 800 instructor hours, of which 500 were in single-engine aircraft. Helicopter and airplane maintenance training instructor positions are also open at the Army Aviation School, and this position pays $3,410 to $4,160 a year. Applicants may write direct to the Board of U. S. Civil Service Examiners, the Army Aviation Center, Camp Rucker, Alabama, for further information.

THREE BEECH TWIN-BONANZAS FOR LOCKHEED AIRCRAFT CORP. have been sold by Norm Larson, Beech distributor for Southern California and Nevada. They will replace two single-engine Bonanzas in use for two and a half years and will be used to ferry pilots and employes to outlying bases. Lockheed also operates a company DC-3.

SIX L-17 ARMY NAVIONS WILL BE MODIFIED INTO DRONE AIRCRAFT by Temco Aircraft of Dallas, which will also fabricate three ground control stations under the same Army Signal Corps contract.

FIRST RILEY 55 TWIN IN EUROPE has been delivered to Zurich for Temco Aircraft by Fleetway, Jack Ford's ferrying service. It was flown via Newfoundland, Greenland and Iceland, without extra fuel tanks.

TARGET PLANES WILL BE PRODUCED BY BEECH AIRCRAFT for the Navy and will be "out-of-sight" aircraft for training of ship-to-air and air-to-air Navy weapons systems crews. The new drone is the Beech XKDB-1, an all-metal, high-wing monoplane with V tail and wing span of 12.5 ft., length of 13.5 ft. and weight of less than 600 lbs. It is powered by a 6-cylinder, opposed, 2-cycle turbo-supercharged engine. Automatic parachute recovery will be provided. Beech won the design contract in competition with 8 other companies. Dr. James F. Reagan heads the new Beech engineering division for guided missiles and target aircraft.

RYAN AERONAUTICAL COMPANY has a new $2,500,000 contract for advanced development of Air Force guidance systems for supersonic missiles.

A NEW SERIES OF AIR FORCE AIRCRAFT will be developed by 6 companies recently awarded development contracts, as follows: Long-range interceptor — Lockheed, Northrop and North American; fighter-bomber — Republic and North American; tactical bomber — Glenn L. Martin and Douglas. From these, the Air Force will select one design of each type for production.

DONALD A. QUARLES, who has been serving as assistant secretary of defense for research and development, has replaced Harold F. Talbott as secretary of the Air Force.

FRANK N. PIASECKI, former board chairman of Piasecki Helicopter Corp., from which he recently severed connections, has organized a new firm known as "Piasecki Aircraft Corporation" in Philadelphia and is undertaking defense and commercial projects.

PIPER AIRCRAFT CORPORATION RESUMED PRODUCTION on Aug. 29 after settlement of a strike by Piper employes who stopped production on Aug. 1 following a two-week plant-wide vacation.

CURTISS-WRIGHT HAS RECEIVED ORDER FOR 500 TURBO-COMPOUND ENGINES of an advance type for the overseas version of the Douglas DC-7C. The order was from Douglas Aircraft and 10 airlines and the engines will power 100 DC-7C's. The advanced engine is rated at 3,400 hp. and the overseas DC-7C is capable of a non-stop flight of 5,000 miles with full load.

FIVE NEW LOCKHEED SUPER CONSTELLATION AIRFREIGHTERS have been ordered by Slick Airways to meet increasing cargo demands. They will cost $11,000,000 including spares, and delivery will be in January-March, 1957. The new Lockheeds, Model 1049H, will have a payload exceeding 40,000 lbs., a 335-mph. cruising speed and range up to 3,250 miles with reserves.

AVIATION FINANCIAL SERVICES, INC., has been organized by Harold R. Harris, 14 Wall Street, New York City, to specialize in financing civil aircraft equipment needs of airlines and corporate aircraft users.

JAPANESE PRODUCTION OF LOCKHEED T-33 JET TRAINERS has been approved for Kawasaki Aircraft Co., which will be assisted by Lockheed Aircraft Service Overseas, Inc., under a technical assistance contract awarded by the U. S. Air Force.

Kawasaki began overhauling jet airframes at Akashi, Japan, in 1953 and jet engines at Gifu in 1954. It will manufacture the T-33 at Gifu, where more than 1,000 Japanese workers will be employed within 12 months.

NORTH AMERICAN AVIATION AND ROLLS-ROYCE of England have entered a mutual technical assistance agreement which licenses Rolls-Royce to manufacture rocket propulsion systems designed and developed by North American. NAA is supplying propulsion systems for its own SM-64 Navaho intercontinental missile and for other missile programs and its field laboratory 35 miles from Los Angeles is the largest and most complete of its kind in the United States for testing high-powered, lightweight rocket engines, fuels and armament rockets. In 1953 NAA designed and built for the Air Force a 50,000-lb.-thrust liquid propellant engine capable of accelerating a test sled to more than 1,500 mph. in only 4.5 seconds.

ROUND TRIP AIR COACH TRANSCONTINENTAL FARES OF $160 have been posted by American

Airlines and United Air Lines. These fares are a reduction of 20% from former charges.

SOLAR AIRCRAFT OF SAN DIEGO has announced a contract under which it will lend its jet engine afterburner knowledge to Bristol Aeroplane Company of England. Solar pioneered jet afterburners and says that every known afterburner in the world today uses features originated by Solar.

CIVIL AIR PATROL personnel in mid-1955 totalled 88,942 active senior and cadet members, the rolls carrying 37,627 seniors, of whom 4,422 are female, and 51,315 cadets, of whom 9,716 are female. CAP units now number 2,532 and include 52 wings, 176 groups, 1,387 senior squadrons and 917 cadet squadrons. Qualified CAP communicators operate 10,596 radio facilities of which 4,451 are fixed, 5,620 are mobile and 515 are airborne. CAP has 500-odd war surplus liaison planes on loan from the Air Force and has use of 4,800 planes owned by CAP members and CAP units. There are 12,756 rated CAP pilots and 1,833 rated observers.

THE SPEED CONTROL SYSTEM manufactured by Safe Flight Instrument Corp., has been approved by Aero Design & Engineering Co. as optional factory installed equipment on the Aero Commander. It is also approved for factory installation by Cessna Aircraft Co. The Safe Flight Speed Control is a simple computer which compensates for a variety of flight variables such as power, gross weight, flap and gear position, turning and longitudinal accelerations, ground effect and density altitude. It enables the pilot to achieve the best possible speed for take-off, landing and slow flying as well as to make easy adjustment for engine-out conditions.

RECENT SALES OF HILLER MODEL 12B HELICOPTERS included deliveries to Guayaquil, Ecuador, for Sociedad Agricola; Air Service Training, a firm in England, and a German firm, Luftfahrt-Technik.

PRODUCTION AND MARKETING HAVE STARTED on the Royal Gull, 5-place amphibian, with Vest Aircraft & Finance Co., Sky Ranch Airport, Denver, as western sales representative. Vest covers 11 western states plus Mexico and Alaska for the Gull, and has purchased its first demonstrator with arrangements for two more airplanes. Powered by 270-hp. Lycoming pusher engines, the Royal Gull is the only all-new, twin-engine amphibian in production. It has a cruising speed of 160 mph. at 70% power, a 1,700-lb. useful load at a 3,000-lb. gross weight, and a range of over 6 hrs. Certificated by CAA, its airframe and wings are built in Genoa, Italy, and shipped to Milwaukee, Wisconsin, where it is assembled with American-made components and accessories by Royal Aircraft, a subsidiary of Kearney & Trecker Corp. In recent Colorado and Wyoming tests, take-off was made in less than 36 seconds in calm water at gross weight on reservoirs up to 6,500-ft. elevation above sea level. At the Rawlins Municipal Airport, elevation 6,780-ft., take-off at gross weight was made in less than 19 secs.

FIRST PRODUCTION DELIVERY OF A CAMAIR 480 was made in August to Fred J. McCabe (right) of the Grolier Society, Kansas City publisher, by Camair, which is manufacturing the light twin at a 1-a-week rate at Galveston, Texas. Developed from the Navion, the Camair 480 is powered by 240-hp. Continental engines. Shown with McCabe are William Schmidt (left), Camair sales manager, and Charles Toth, Camair distributor at Kansas City. Camair is now negotiating other distributorships for the airplane. —(Camair Photo.)

CAA SAYS PILOTS USING DME will soon be able to make straight-in instrument approaches at many airports instead of going through time-consuming approach maneuvers, the effect being to save 10 mins. or more. One pilot, Max Partridge, flying a Lodestar out of Sturgis, Mich., told Narco he has been using DME for letdowns which saved at least 30 mins. on several occasions. Other interesting DME notes from Narco: Ground distance and slant distance are virtually the same as long as the number of miles from the station exceeds the thousands of feet of altitude. John Basanese, General Aircraft Supply, Detroit, offers these calculations of slant distances, with ground distances in parentheses: 20,000 ft., 200 miles (199.96 mi.); 20,000 ft., 20 miles (19.64 miles); 15,000 ft., 5 miles (4.11 mi.); 10,000 ft., 5 miles (4.63 mi.); 5,000 ft., 5 miles (4.91 mi.) and 5,000 ft., 2 miles (1.76 mi.).

WINNERS OF HONORS in the recent Third Annual Transcontinental Air Cruise, sponsored by the Philadelphia Junior Chamber of Commerce, are shown above. Left to right are Thomas Lavelle of Newton, Pa., fourth place; Faye Douhitt of El Centro, Calif., third place, and Richard Jackson of LaMesa, Calif., second place. Winner of the contest, Mrs. Eugenia Heise of Milwaukee, was not present for the picture. Fifty-four planes participated in the race, which was from Palm Springs, Calif., to Northeast Airport in Philadelphia.

BENDIX AVIATION JOINS PRATT & WHITNEY AND SOUTHWEST AIRMOTIVE for the first time in staging SAC's annual engine forum on Sept. 21 at the Melrose Hotel in Dallas. Southwest expects 200 pilots, mechanics, and fixed-base operators to attend. The discussions will wind up with a Hawaiian festival around the hotel's swimming pool, complete with hula girls.

SMALL AIRCRAFT TURBINE ENGINES are discussed in a new General Electric brochure describing its progress. It is available from General Electric, Schenectady 5, N. Y.

CAA CERTIFICATION FOR COMMERCIAL AIRLINE OPERATIONS of its new 707 jet transport is being sought by Boeing. The 707 has logged almost 200 hrs. in 127 flights during the past year. An airline version will be available for delivery in 1958.

THREE AIRLINES HAVE ORDERED 14 NEW 52-PASSENGER CONVAIR 440 METROPOLITAN airliners worth $11,250,000. The 440 is the "quiet cabin" version of the Convair 340.

AERODEX OF MIAMI has received two contracts for $4,000,000 covering overhaul of R-2600 and R-2800 engines for the Air Force.

DELTA-C & S AIR LINES has ordered six additional Douglas DC-7's for delivery in 1957, bringing to 11 the number of DC-7's it has on order. Delta currently operates 10 DC-7's.

ALL-WEATHER HELICOPTER FLIGHT INSTRUMENTS are being developed by Bell Aircraft under a long-range Navy contract.

TWO NEW NAVY JET FIGHTER MODELS are being developed by McDonnell Aircraft at St. Louis, which has a production order for a missile-

(Continued on page 44)

Service Designed For Business Flying

Cessna aircraft owners fly more hours per month and cover more miles of territory per hour than ever before — because their Cessnas were designed for service efficiency in the air and on the ground.

Business fliers stay on the go more by depending on our Authorized Cessna Service to keep their aircraft always ready for reliability, performance and comfort. We know their needs best because our factory-approved facilities and staffs specialize in factory methods, equipment and accessories.

Get the most out of your Cessna by taking advantage of the three important service features guaranteed by our factory-supervised Cessna Flat Rate Program:

1. You get an accurately quoted price and time-required quotation based on hundreds of job studies covering virtually all maintenance needs.

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To make the most of your Cessna's usefulness, visit the Authorized Cessna Service Stations listed below.

These progressive Cessna Authorized Service Shops offer flat-rate service.

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Stapleton Airfield
Denver, Colorado

Cruse Aviation, Inc.
Municipal Airport
Houston, Texas

Dal-Tex Aviation, Inc.
Highland Park Airport and Love Field
Dallas, Texas

Hair Flying Service
Harding Field
Baton Rouge, Louisiana

Howard Aero Service, Inc.
San Antonio International Airport
San Antonio, Texas

Poelman Aircraft Co.
New Orleans Airport
New Orleans, Louisiana

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Kenneth Starnes Aviation Service
Adams Field; Little Rock, Arkansas

Southwestern Skyways, Inc.
Municipal Airport
Santa Fe, New Mexico
and Ogden, Utah

Sunny South Aircraft Service, Inc.
Broward International Airport
Fort Lauderdale, Florida

Walston Aviation, Inc.
Civic Municipal Airport
East Alton, Illinois

Yingling Aircraft, Inc.
Municipal Airport
Wichita, Kansas

First Businessliner boasting a top speed of over 220 m.p.h., Cessna's new 5-place 310, with space for 200 lbs. luggage, sets new standards as the ...

Fastest Business Twin

Speed with a purpose

Two 240 h.p. engines give the 310 a cruising speed over 205 m.p.h., make it the fastest executive twin. Airplane's primary purpose: safe, fast service for businessmen on the go! The all-new 310 carries five passengers over 1,640 miles in a single day,* gives business a new flexibility.

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8-hr. Flying Day

Climbs on one engine

This airplane can climb 380 feet a minute on one engine, fully loaded! Two 50-gal. wing-tip tanks cross-feed to either engine. Even with one tank empty, "trimming out" is easy! 310's advance design makes it cleanest in its class aerodynamically. Costs only $49,950! See nearest Cessna dealer listed in yellow pages of phone book or write CESSNA AIRCRAFT CO., DEPT. FM-9, WICHITA, KANSAS.

Luxury unlimited

Planned for flying comfort, this luxurious all-metal twin has wide, foam-rubber adjustable rear seats, adjustable and reclining front seats. Interior colors match stunning exterior color combinations. 200-lb. luggage compartment is reached through cabin or outside door. Full heating-ventilating system with 8 outlets and defroster.

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Figure the dollar value of this type of performance - - ADD the savings from a 50% increase in ring life and a 30% reduction in lube oil consumption . . . . . THEN you'll know why economy minded operators of business aircraft specify channel type PORUS-KROME

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AIR REPORT

(Continued from page 41)

carrying version of the Demon, designated F3H-2M, and a development contract for a new Navy fighter whose designation has been changed from the AH-1 to the F4H-1. An interceptor version of the Air Force F-101B Voodoo has been ordered and the company has a contract for a photo-reconnaissance Voodoo, the RF-101A.

PROFITABLE DC-8 JET AIRLINE OPERATIONS DOWN TO 500-MILE RANGES has been forecast by a Douglas spokesman, Ivar L. Shogran, DC-8 project engineer. He said passenger-mile costs of the DC-8 will be 25 per cent lower than that of the best piston-engine airliners on routes as short as 550 miles. He also discussed new details of the DC-8, including the following: Fuel capacity of 13,338 gals. for domestic models and 18,538 gals. for intercontinental models, allowing nonstop westbound flights from Paris or London to New York against a 60-knot headwind with full payload of 32,000 lbs.; wing area of 2,594 sq. ft.; two passenger doors will facilitate terminal loading and unloading.

FAIRCHILD AIRCRAFT IS MODIFYING OVER 500 C-119 FLYING BOXCARS for the Air Force.

SUPERSONIC B-58 AIR FORCE BOMBERS are rapidly nearing production at Fort Worth, according to Convair. Crews are beginning to assemble parts that are taking on the appearance of airplane sections. They are also assembling an all-metal "simulated" B-58 fuselage.

FIRST FLIGHTS HAVE BEEN MADE BY A TURBO-PROP BOEING B-47 BOMBER, modified with two Curtiss-Wright T49 turbo-prop engines and two GE J-47 turbo jets. The C-W engines drive 15-ft. hollow-steel Curtiss-Wright Turbolectric propellers featuring full synchronization, feathering by manual or automatic means, fast reversing, and single-lever power control. The T49 is described as the "most powerful turbo-prop engine ever to fly" by Curtiss-Wright, but its rating was not disclosed.

FIRST CAA CERTIFICATE FOR AN AMERICAN TURBO-PROP PROPELLER has been granted to Curtiss-Wright. The certificated model is now in quantity production for the Lockheed Hercules transport.

BILL SPARKS' FERRY SERVICE COMPANY of Wichita, Kansas, recently ferried two Piper twin-engine Apaches to London for delivery. They were equipped with standard blind-flight instrumentation, 36-gal. auxiliary wing tanks and a Narco Simplexer VHF radio — plus an expendable 140-gal. cabin fuel tank and portable communication and navigation radio including a Sunair HF transceiver and a battery-powered Mitchell VHF Airboy. The Sunair.

with voice and CW, maintained continuous voice communication with Shannon, Ireland, after one hour out of Gander, Newfoundland. Ed Murphey, who has over 100 ocean crossings and captained the flight, said weather at BW-1, Greenland, forced a non-stop hop to Iceland but that, despite this, 6 hrs. 20 mins. of fuel remained. Bill Sparks said he has so far delivered 450 aircraft in 1955.

HOW TO RECOGNIZE EXTREMELY DANGEROUS THUNDERSTORMS was told in a recent Beech Aircraft safety bulletin showing time-lapse photos of cell development. The bulletin pointed out the following test of an active cloud: "If the edges look firm and distinct, like a pile of whipped cream, the cloud is expanding — stay out of it. When it gets fuzzy and soft looking, it has lost energy, but beware of a brand-new cell, out of sight on the other side of the spent cell."

JET WASH CAN BE DANGEROUS TO LIGHT AIRCRAFT, according to a recent Flight Safety Foundation bulletin issued by Jerome Ledcrer. He quotes the ARDC Flying Safety Newsletter as follows: "A CAA airways flight inspection pilot has attempted following a B-47 at various distances to determine the effects of jet wash upon lighter aircraft. At one mile, his Twin Beech was violently uncontrollable; at two miles, it was uncontrollable; at three miles, it was in violent turbulence; and at four miles control was barely possible. It appears to us that a word to pilots on the inadvisability of crowding multi-engine jet aircraft might easily prevent a few gray hairs, if nothing else."

ANOTHER PORUS-KROME ENGINE PLATING FACILITY is being added by the Van der Horst Corporation. To meet increased midwest demand, Van der Horst will construct a plant in Chicago at 2610 South Shields Avenue, with production early in 1956. Van der Horst has plants now in Terrell, Texas, Olean and Salamanca, New York, and Hilversum and Zwolle, Holland. It licenses the U. S. Navy, Spar-Tan Engineering at Los Angeles, the Koppers Co. at Baltimore and the Vari Corp., Minneapolis.

GENERAL AIRCRAFT SUPPLY at Detroit City Airport has been appointed distributor of Continental aircraft engines, according to D. H. Hollwell, Continental vice president, and Larry Zygmunt, General Aircraft president.

A NEW AIR STARTER AND GROUND POWER SUPPLY for jet and turbo-prop aircraft has been developed by Gremco, Inc., Fort Worth, and tested by Douglas Aircraft Co. on the B-66 jet bomber. The Gremco air start unit, designed to replace electric starting equipment on jets, operates on the pneumatic principle utilizing a 340 air-horsepower jet of air to start large jet engines. It also supplies a steady stream of high pressure air to the aircraft so that ground crews can operate and check aircraft accessories without having to start the aircraft engines for power. In addition to tests on the Douglas B-66, it has been tested as effective for quick starts on the T-34 Allison turbo-prop engine for military and commercial transports. Cable or radio controls enable the aircraft pilot to operate the ground unit from the cockpit.

FIRST DELIVERIES OF ALL-METAL HELIOPLANES have been made from production at the plant of the Mid-States Company, Pittsburg, Kansas, with the first two going to W. M. Joy, Detroit, and Distributor Eugene Kettering's National Aero Sales at Chicago. Featuring high-lift devices, the Helioplane is said to cruise at 157 mph. although it can fly at 30 mph. with control. Landings and take-offs within less than 300 ft. at full gross are claimed. Mid-States is manufacturing the planes under arrangements with Helio Aircraft Corp. of Norwood, Mass.

EXECUTIVE AIRCRAFT PROJECTS INCLUDING REFRIGERATED AIR-CONDITIONING package units for light twins are to be studied in Europe by William P. Lear for possible development and marketing in the U. S. Lear is taking up residence in Geneva, Switzerland, for the project. He told of general plans at a meeting for Midwest aircraft manufacturers in Wichita last month. One of the projects mentioned is an auxiliary power plant weighing only 12 lbs. per horsepower for a small refrigerated unit delivering 5 tons of air conditioning for light twins such as the Beech Twin-Bonanza, Cessna 310 and Aero Commander. Other projects include new gyro instruments. Lear suggested airframe manufacturers should design for flush antennas and other business flying needs. In view of CAA decommissioning of long-range navigation equipment, Lear said business fliers should join the airline ARINC group which welcomes them and maintains excellent standby services. He apparently is developing new medium frequency units to utilize these ARINC services.

SOMETHING NEW IN AIRPORT PROMOTION is planned by the Topeka (Kansas) Chamber of Commerce for its Second Annual Aviation Day festivities on Oct. 30. It will sponsor the first annual meeting of the Midwest Flying Commuters Club on Oct. 29, inviting the mayors, commissioners, airport managers and fliers from a 500-mile radius to get together for exchanging problems and solutions. The following day will feature a fly-in breakfast, church services at the airport, exhibits and presentation of celebrities. Objective is to acquaint fliers with the fine service and facilities at the Philip Billard Municipal Airport.

CHRIS HESSE, general manager of Wagner Electric Corp., St. Louis, has joined Cessna Aircraft Co., as manager of its Pawnee Road plant in Wichita. . . . **CHARLES JACKMAN** has been appointed export manager of Cessna Aircraft, reports Commercial Sales Manager Frank Martin. Cessna's export aircraft sales were up 20 per cent for the first half of 1955. . . **CLYDE P. BARNETT,** Los Angeles Chamber of Commerce aviation manager, is the new director of the California Aeronautics Commission staff, succeeding Mike Doolin, who resigned in June. ★ ★ ★

National Airport Conference Program for Norman

CURRENT opportunities and problems facing airport management will be discussed by industry leaders gathered at Norman, Oklahoma, on October 5-7 for the National Airport Conference, jointly sponsored by the American Association of Airport Executives, University of Oklahoma and the Civil Aeronautics Administration. After first-day registration, an AAAE directors' meeting and pre-conference barbecue, the program will be as follows:

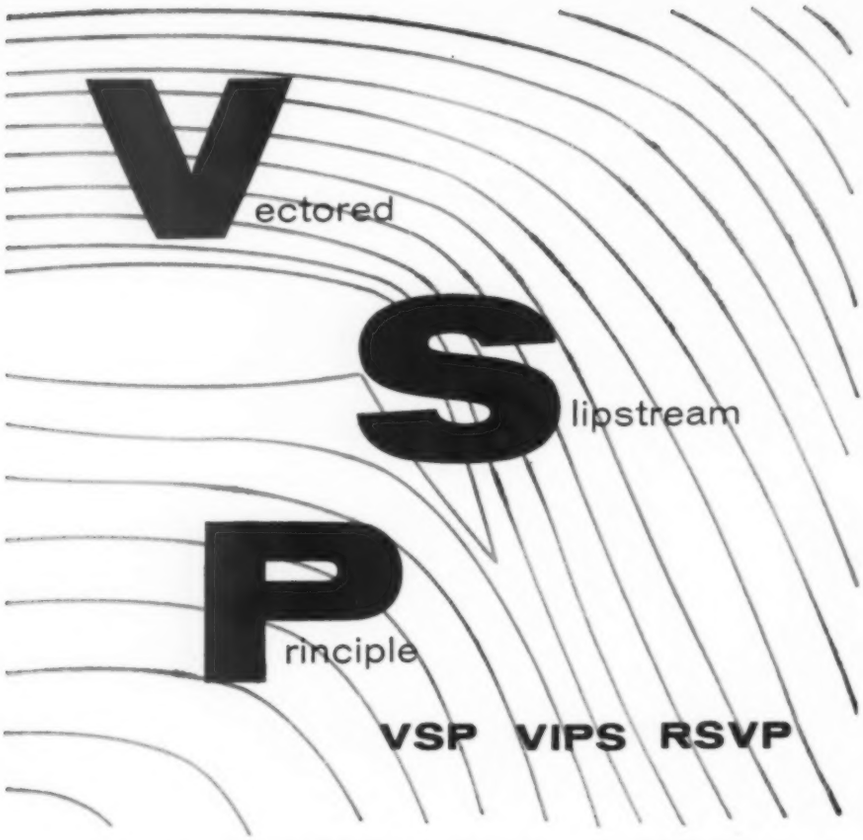
October 6 — Morning Program: Volume refueling systems; revising airport fueling to reduce costs and increase volume; small airport coffee shops, with the chairman being W. E. Cullinan, Jr., airports chief of the 1st CAA Region, Jamaica, N. Y.

October 6 — Afternoon Program (Frank Pittinger, Muskegon (Mich.) airport manager, chairman): Transient aircraft as customers; airpark operation; government rights in public airports; airport responsibilities for airline passengers; airport use panel philosophy and function.

October 7 — Morning Program: How to handle live bonds; the Nebraska plan for financing hangar construction; property rights in air space. Senator Mike Monroney will be the luncheon speaker.

October 7 — Afternoon Program: Necessity of secondary airports; clinic for airport management; the airport board and the manager; the airport manager's job. At the closing banquet, Dr. Leslie Bryan, president of the AAAE, will preside.

Nationally-prominent authorities on airport facilities and operations will be panel leaders. The Norman Conference is a shirt-sleeve get-together for open and frank discussions and has become America's major clinic for airport managers and operators. A large attendance is expected.



Advanced research at Fairchild in the applications and effects of the Vectored Slipstream Principle has brought about the need for qualified aerodynamicists who have worked in this vital field, and who can make valuable contributions to its development.

Fairchild, producers of the famous C-119 *Flying Boxcar* and C-123 *Provider*, are now preparing transports, advance reconnaisance aircraft, fighters and missiles. Experienced aerodynamicists with VSP background will find these challenging new programs an exciting, stimulating climate in which to utilize and profit from their experience.

Investigate these forward-looking, pace-setting developments. If your experience and originality can advance Fairchild's rapidly-expanding program, you can be sure there's a big future waiting for you at Fairchild.

Investigate, too, the superb conditions for living and working near urban Baltimore and Washington, in the attractive Cumberland Valley. Fairchild offers outstanding company benefits: salary plans . . . paid pensions . . . health, hospitalization and life insurance . . . the many *extra* advantages of working with a genuinely progressive, fast-growing organization.

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ENGINE AND AIRPLANE CORPORATION
FAIRCHILD
Aircraft Division
HAGERSTOWN, MARYLAND

JET DEMONSTRATION

(Continued from page 24)

bore Series 2 engines in it are currently approved for only 150 hours of operation between overhauls, although we understand the French Air Ministry extended this time to 200 hours recently on a temporary basis.

Performance includes single-engine ceiling of about 9,000 ft., at an air speed of about 220 mph. The engines being located in the fuselage, very little trim is necessary, even when slowed down to 120 mph. With an engine shut down in flight, the air continues to spin the turbine wheel. With the throttle closed, the engine idles at some 11,000 rpm. in flight at a 10,000-ft. altitude, we found. On the ground, it idles at about 7,000 rpm.

Here are some fuel consumption figures with engines operated at 21,000 rpm. for cruising at various altitudes: 2.89 gals. per min. and 173.4 gals. per hr. at 12,000 ft., with air speed at 308 knots; 2.65 gals. per min. and 159 gals. per hr. at 15,000 ft. with air speed at 307 knots; 2.17 gals. per min. and 130.2 gals. per hr. at 21,000 ft. with air speed at 303 knots, and 2.01 gals. per min. and 120.6 gals. per hr. at 24,000 ft. with air speed at 297 knots. This last condition would be an ideal one, with 79 gals. of fuel required for the 21-min. climb to 24,000 ft.

The need for more fuel becomes obvious when the figures above are considered, along with legal reserves and alternate airport requirements for instrument flight.

More powerful small engines, which are also more efficient, are being developed and will soon become available. For example, Continental Motors is said already to have increased its Americanized version of the same engine to a thrust rating of about 1,000 lbs. with better fuel consumption. This is a single-stage centrifugal turbo jet. Other experimental multi-stage axial turbines and jets combining axial and centrifugal compressors are said to offer thrust ratings of 1,200 to 1,500 lbs. or so with improved fuel consumption. Among these are Lycoming and General Electric turbines.

A Beech decision on its option for the M-S 760 is due at the completion of demonstrations to civilian and military prospects. Meanwhile, indications are that Beech officials have become very interested in jet propulsion. Whatever happens, Beech has already gained considerable prestige from its M-S 760 demonstrations. If and when a business jet becomes a reality, hundreds of business fliers will be able to say they took their first jet ride in an airplane demonstrated by Beech. ★★★

WALSTON SUCCESS STORY

(Continued from page 21)

permitting an expert to be called in to close some sales.

The meetings, originated as an interchange of ideas and for protection of prospects, later developed into everyone talking about how much trade was allowed in specific sales so that now each dealer and salesman knows all the factors in any one deal. When a "shopping" customer comes around to a second or third salesman, he is offered a deal a little higher than the original so that if a deal is made the prospect makes it with the first salesman. When deals fall through or hit a snag, thorough discussion of the factors involved provides new leads and also gives new salesmen valuable background and education.

A healthy by-product of the sales meetings is locating various used airplanes for salesmen with specific prospects for a certain kind of ship at a definite price. For example, one salesman might be looking for a 140 at around $2,000. Another salesman might have taken such an airplane in on a recent trade.

Not all the Monday morning sales meetings are peaceful, but they produce results. Everybody lets his hair down and ends up going out with the air cleared, with everyone knowing whose customer belongs to whom and what the market and competition are doing. Walston often has suppliers come in and talk about accessories and how to boost sales.

In the fifty national distributor territories a total of 2,178 sales calls were turned in to the Cessna factory for the month of May. Walston's salesmen and dealers account for 319 of this total, substantially higher than the national average. The 319 excludes "management" calls made by Walston. When Walston started selling airplanes as a Cessna dealer, someone forgot to tell him he couldn't sell airplanes by ringing doorbells so he went right on pounding the asphalt and called on people the average airplane salesman wouldn't consider a prospect.

A typical day was the day before I arrived when salesman Howard Fricke sold and delivered a new 170. He got a lead from the new owner and flew over to Paris, Illinois, and sold a used '53 Model 170, demonstrated a new 180 to six prospects out of a farmer's landing strip and returned home with one hot prospect out of the six. Another salesman went to Taylor-

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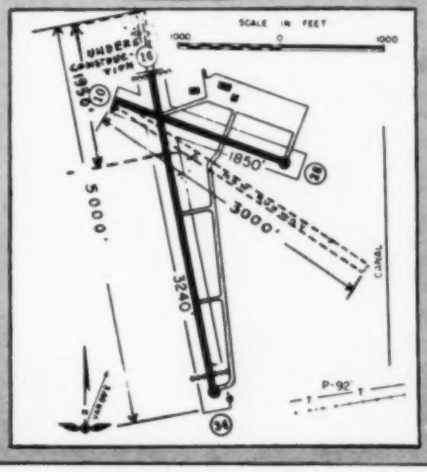

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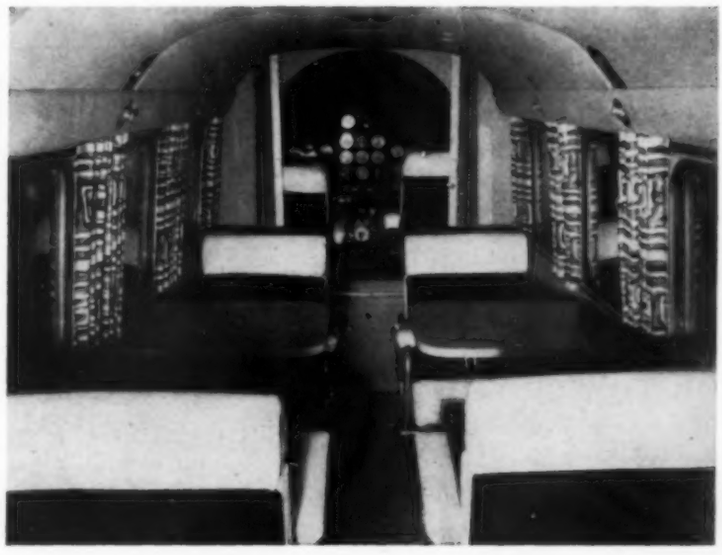

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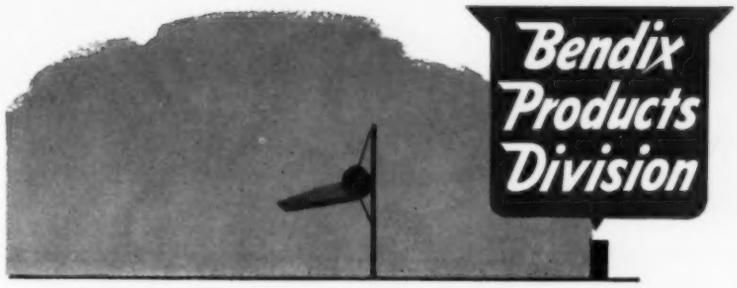
ville on a demonstration that required a full day with the prospect but he believed he'd made a sale. Gene Bright, the sales manager, flew to Indianapolis on a sale and Walston flew out to inspect a crack-up, bid it in at a fair price in order to sell the owner a new airplane. Each prospect was a thoroughly analyzed one. The salesmen all got in by six o'clock that night and two deals were discussed involving trades, one on an owner who wanted $3,500 for his Ercoupe and another on a used Mooney in which they were $150 apart. Sales manager Bright and Walston went into a huddle and made the final decision on how far to go. Then they all went home to dinner.

Walston says he never has and never will try to compete with the wholesalers. He doesn't believe in giving away an honest profit just to move an airplane, new or used. They talk quality — not price. When a prospect starts on price the salesman starts talking on the condition of the airplane if used and on the advantages of the model if new. The customer always must know exactly what he's getting because satisfied customers are the key to repeat business.

Everybody is a prospect at Walston Aviation. If a transient stops in for a few gallons of gas, the line boy is on the spot to attend to him. Right on his heels is a salesman or Walston himself to start up a conversation, to see if he needs a hotel room, a car or a cup of coffee. A short talk generally reveals the man needs something else and more often than you think, says Mel, he's open to a trade for a faster or better ship. A preacher stopped in to gas up his 170 a few weeks ago. They talked him into spending the night. The next day they sold him a new C-145 Continental engine, a Narco Omnigator and cross-wind landing gear. Within a few months he plans to buy a used 195. His original order was for 27 gallons of gas!

A New Jersey house builder, about to retire, stopped in for gas in a 170. He also spent the night. They took him out to dinner and started talking 180 to him on the basis that he could afford it, that it was better transportation even though an occasional trip to Florida and a couple of flights across the continent were the only long trips he made each year. The man admitted he was fairly well-to-do but saw no reason for putting several thousand extra dollars in a faster airplane. Walston asked him if he ever saw a Brinks money wagon following a funeral procession out to the cemetery, illustrating the old point that you can't take it with you. Next day the man bought the 180. He is flying



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the airplane far more hours than he did the old 170 and is now about to fly out from New Jersey to trade for a new 180.

When asked if the factory minded his selling to people who lived in other parts of the country Walston admitted it had caused some trouble. "But I'm going to try to sell everybody who lands on this airport," Walston said in no uncertain terms. "We've had customers fly in from Texas for a paint job and from Mississippi for radio work. A man in New York City damaged his 195 and we got the bid to haul it out here, fix it up and saved him $2,000 from his lowest local bid. This made us a good prospect. If I can make an honest profit on the gentleman and still save him money you have a satisfied owner. Only satisfied owners will make this business prosper."

The customer is always right at Walston. They fix a lot of crack-ups in the well-equipped shop, which has factory-made jigs for the 170, the 180 and 195 models. When service customers squawk about the bill they're shown the labor and parts sheet and told to discount it themselves for what they think they've been overcharged. Not once has this "open-book" policy failed to work and as yet, Walston said, knocking on wood, no customer has taken advantage of cutting his own bill. Customers are welcomed into the shop as Walston's mechanics are also salesmen. They recognize an airplane owner's deep interest in his airplane and since he's paying for labor time, they don't mind his being around watching the operation and asking questions. Oftentimes accessory sales are made by mechanics.

When a new owner takes delivery or a major repair job is completed, the company takes a large color photograph of the airplane and sends it to the customer. Nine times out of ten the photographs are hung with pride on the owner's office wall. Walston believes that the little services his personnel go out of their way to provide every customer is one of the key reasons for his growing business.

We personally observed the close attention given to small details. While talking over a cup of coffee in the clean little restaurant owned and operated by Walston Aviation, the Monsanto Chemical Company of St. Louis telephoned in to charter a twin Beech with pilot. They wanted lunch and coffee on board. Our conversation was interrupted no less than six times while Mel saw to it that the lady behind the counter washed out the coffee container, tested the cream personally to see that it was sweet, and made the pilot go get a sport coat and tuck in his shirt tail.

Similar attention to detail was noticed on the physical appearance of the field, with grass mowed and flowers in bloom, clean housekeeping in the offices, rest rooms and shops. The airport has a public picnic ground and children's playground with all sorts of equipment so the family will have something to do while papa is up flying.

The general atmosphere is that of one happy family. Salesmen get a guaranteed salary plus a bonus. Many personal services are rendered every employe from arranging loans to helping them procure houses and furniture.

In commenting on the future of private and business flying Walston and his sales manager, Gene Bright, are convinced that all we need now is more competent salesmen. He believes the time is not far off when it will not be unusual to see airplane salesmen up in the high income brackets. We have a few now but salesmen making $20,000 to $25,000 a year are the exception rather than the rule.

Walston, who was allocated the first production model Cessna 310 after a sales contest last year, believes the new light twins now on the market will be a principal factor in attracting more competent salesmen into the

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Announcing the Formation of the NATIONAL PILOTS ASSOCIATION

open to all pilots—private, business, airline, military

Out of a long-felt need for a truly democratic organization of pilots representing all segments of the flying fraternity, has emerged the National Pilots Association, Inc.

★ ★ ★

NPA, now with headquarters in New York, will soon have a full staff and office in Washington to represent the particular interests of all who fly aircraft.

NPA will help give added representation to that already in effect, to combat any encroachments on our rights as pilots to use the airspace. This much-needed pilot's organization, operating in a democratic manner, will give added weight and forcefulness to the efforts already undertaken by various other organizations.

In addition, NPA plans an active program of aviation development to encourage the use of aircraft for business and pleasure. It hopes to sponsor national, regional and local flight activities – tours, navigation and efficiency contests. It will work closely with the National Aeronautic Association which is the official USA representative of the Federation Aeronautique Internationale, the world-wide governing body of sporting aviation.

NPA will refrain from profit-making operations such as insurance sales, premiums, magazine subscriptions and cut-rate merchandise offers. NPA will work with and not against manufacturers and operators. NPA will have an annual meeting open to all members at which officers will be nominated and elected in a truly democratic manner.

NPA's Founders

NPA was instigated by some of America's best-known and most active pilots in all spheres of aviation activity. Originators include:

Robert N. Buck, Captain, TWA, International Division. Former Transcontinental record holder and well known writer. (1st VP of NPA)

Leighton Collins, Editor and Publisher of Air Facts magazine. (2nd VP of NPA)

B. Allison Gillies, San Diego, Calif. Well known private pilot of 31 years experience. (Director of NPA)

George Haddaway, Editor and Publisher of Flight magazine. (Director of NPA)

Dwight P. Joyce, President of The Glidden Company, Cleveland, Ohio, private plane owner for many years. (President of NPA)

A. Paul Vance – Monsanto Chemical Corp., St. Louis. (Director of NPA)

William J. Junkerman, veteran Naval pilot, well known aviation attorney. (Secretary of NPA)

George Galipeau, Amherst, Mass., Vice President, Van Dusen Aircraft Supplies, private pilot of 20 years experience. (Treasurer of NPA)

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NPA is an organization for all pilots, a place where they may solve their mutual problems, and together advance their flying interests. It also will operate in fields now neglected for the betterment of flying.

If you are a pilot seriously interested in aviation, whether student, private, business, commercial, airline or military, you are eligible for membership in NPA. You will find the service rendered more than worth the moderate membership fee. Why not fill out the attached application blank and forward to NPA headquarters? You will promptly receive your NPA membership credentials, and start receiving the club's valuable information bulletins.

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aviation field and make it possible for them to make as much money as those in the heavy equipment field throughout American industry.

"At least," says Walston, "the application of modern sales techniques to airplane selling is relatively new and we've only scratched the surface. While we are prone to boast about the increased sales of aircraft to businessmen they're not a drop in the bucket compared to the sleeping market yet untapped. We just haven't gotten around to convince successful businessmen those Brinks money wagons never show up at the end of a funeral procession."

We're inclined to agree with him.

★ ★ ★

COPTERS IN EUROPE

(Continued from page 28)

impression was that the Germans are going into mass production of lightplanes just as quickly as they can.

There is one major headache, they told me. They lost most of their aeronautical engineers after the war. These went to Western nations and to Russia. Not only this, but some of them have returned frequently to recruit others and take them out of Germany. "We have to start all over with new aeronautical engineers if our old ones will not come back," one German friend told me, saddened by the realization that German engineers were remaining in their new homes rather than return to the old country.

This is one of several Bell Model 47's used by Norwegian Air Force on coastal patrol. To rescue a person from water, copter carries frogman in canvas "basket" to scene and hovers, while frogman helps load person into container. Canvas cover encloses basket and occupants from weather while flexible tube furnishes heated air from engine.

There is another major handicap to German rebuilding in civil aviation. It is over-regulation of aviation. Strictness and obedience to rules are German traits which made flying difficult for me, even in a helicopter. For example, I was almost forced to cancel some important demonstrations in Dusseldorf because the control tower would not unbend. There was a 900-ft. ceiling and no flying was allowed, even though I insisted that I would be flying the helicopter much below this ceiling. I even offered to restrict my flying to taxiing about the ramp only 4 ft. above the ground. They finally consented when convinced that this was really taxiing rather than flying.

Before returning home, I also visited Oslo, where the Norwegian Air Force utilizes Bell helicopters in coastal patrol and rescue, and London, where British European Airways has begun scheduled helicopter passenger operations from a downtown heliport alongside the Thames River across from Parliament. Because BEA's S-55 will follow the river in its flights, large metal floats were installed. But the wheeled landing gear was retained, forcing the float installation to be located above the wheels. The result is that a landing on the water would

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flood the passenger compartment with at least a foot of water. The added weight of floats, plus the weight of a very large and extremely long exhaust muffler to quiet the S-55 and thus avoid disturbing Parliament, greatly reduces the helicopter's payload capabilities and otherwise handicaps its originally excellent performance and flying characteristics. I was invited to fly it and found it much overburdened.

But as pathetic as this was, regulations went one step farther — they actually added a heavy anchor to its equipment, so that it might comply with marine regulations in case of a forced landing on water, in which event it would become a vessel! Sometimes aircraft can be made so safe as to be hazardous, and this is exactly what the British have done to the S-55.

This state of affairs is due to British safety regulations which handicap operators, who are doing their best and even developing very advanced techniques and equipment (such as a Decca navigation system) until the British helicopter industry catches up with progress and provides modern helicopters.

The only British copter in limited production for any time is the Bristol 171 Sycamore, which is powered by a 500-hp. Alvis Leonides engine and has a 1,270-lb. disposable load in its passenger version while grossing about 5,400 lbs. It has very nice handling characteristics and excellent stability and controllability. But it is a 1947 development and offers no more than the old and now obsolete Sikorsky S-51. Several undesirable features include a CG travel so limited that the use of ballast tanks is necessary. Tips of its 48-ft. diameter rotor droop so low they are only waist high at low rpm., endangering passengers or crews approaching it on the ground.

The Bristol 173 is a promising twin-engine, tandem-rotor transport helicopter but it is hardly more than a promise although it first flew in January, 1952, and has been demonstrated widely ever since. There are other interesting British helicopters, but they are all experimentals considered a long way from production and marketing. In fact, the European view is that the British seem unconcerned about commercial helicopter progress.

This is difficult to understand in view of so much progress in British fixed-wing aircraft and jet engine development. BEA is one of the world's most progressive airlines and can be expected to make the most of future transport copters. ★ ★ ★

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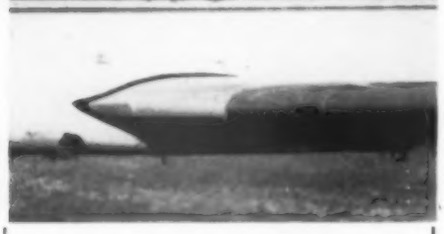

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—(McDonnell Photo.)

Questions and Answers for Operators

Oscillator Chases Birds

LAST month we asked readers for suggestions on the use of high-frequency vibrators to rid hangars of birds and keep them away. The information was sought for a subscriber. Since then, Subscriber George E. Allen, P. O. Box 1306, Fort Myers, Florida, has written us saying he built an oscillator and it has solved his bird problem, which had to do with birds around a bank and hotel rather than in an aircraft hangar. Reader Allen doesn't tell us how to build the device, but suggests that several amateur radio magazines contain diagrams on how to build one. What he passes on to our readers is how he encountered and solved a couple of problems involved.

"Several of the amateur radio magazines contain diagrams of how to build an oscillator," Reader Allen, an attorney, writes. "Basically, the device is simply an ultra high-frequency oscillator pitched well above the capacity of the human ear. I have forgotten the exact frequency we used, but I had one installed in a local bank to keep sparrows out of the tile and later put one in a local hotel.

"I encountered two problems and that is the reason I am writing to you.

"The first problem was that the oscillator had to be low-powered so that it would not create radio interference on secondary frequencies. We mastered this problem through a single-stage tube with about 8 inches of antenna to load.

"Then we found our second problem. It is rough on the dog population. Dogs can hear it and it makes them howl. We solved this by removing about 8 turns on our coil, with a dog standing by, and this apparently pitched it higher than the dog could hear.

"Incidentally, it took just about half of one day for the bird population to move out.

"Later, we found we had to install a meter to determine whether the oscillator was actually putting out or not.

"I pass along these comments for what they are worth to others who are bothered with birds."

Thanks, Mr. Allen. Here's hoping this solves everybody's bird problem in aircraft hangars. First thing for you to do is look up an amateur radio diagram for an ultra high-frequency oscillator and then follow Reader Allen's suggestions to avoid radio interference, pitch the frequency so dogs won't have to howl and install a meter which shows whether the device is putting out.

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Hangars Needed

QUESTION: The news that the CAA will once again be in a position to offer substantial aid to public agencies in the improvement and development of public airports is good news. The passage and signing by the President of Senate Bill 1855, probably best known as the Monroney Bill, apparently gives to cities, counties and other public agencies a chance to plan such development over a period never before possible under the uncertain conditions of annual appropriations of varying and, in a sense, diminishing amounts.

However, there is one segment of aviation that must still look for help which the Federal Aid Airport Act does not give. That is that part of civil aviation — general aviation — which needs hangars, shops and storage facilities. I have been told that the Federal Aid Airport Act of 1946 does not permit expenditure of federal aid for the construction of hangars. To operators and users alike, that is the crying need.

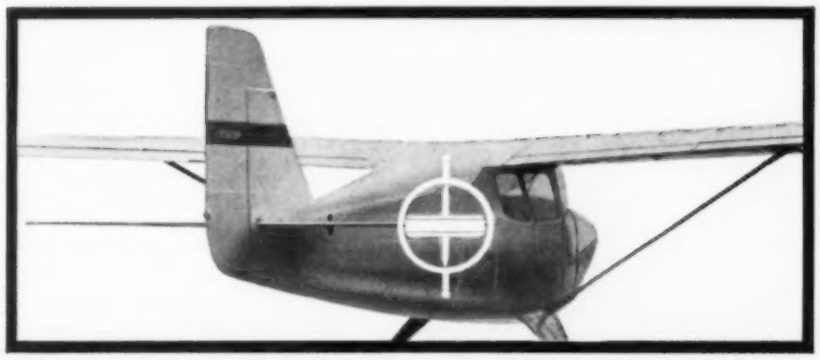
There are a dozen men in my city who would own aircraft if they had assurance they could house them. Yet no one in that same city of mine is showing any interest in that problem. From my traveling over many states I know that we are not alone in this problem. What is the answer to that?

ANSWER: Before trying to answer that question and it is a pressing one, may we take a moment or two to give credit to Senator Monroney and the other Senators whose names appear as co-authors of Senate Bill 1855: Senators Magnuson (Washington), Smathers (Florida), Bible (Nevada), Pastore (Rhode Island), and Ervin (North Carolina). That is the bill which brought federal aid for airports back into the airport picture as a substantial factor in the long-range development of a strong civil airport system in the United States. We remember, too, that Mr. Harris (Arkansas) and Mr. Cramer (Florida) introduced similar bills in the House.

Now to your question. In answering the questions you readers devise to confuse us, we sometimes take our troubles and our puzzles to some of the oldtimers among the airport managers of the country and to some of the younger men who are making names for themselves. As a result we sometimes get some surprising slants on a rough question.

That was done with your letter, only there were present at the luncheon table representatives of both the younger and the older men in the airport management profession. One of the younger ones came up with an opinion that had not occurred to us. Listen:

"I think assurance of sizeable amounts of federal aid over an assured period of years does help the airports



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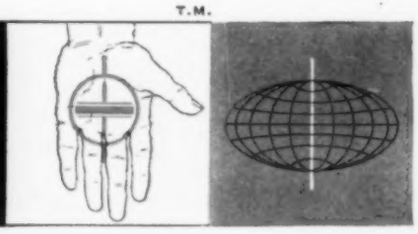

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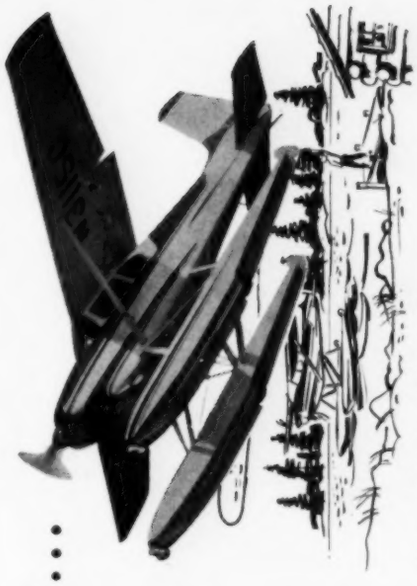

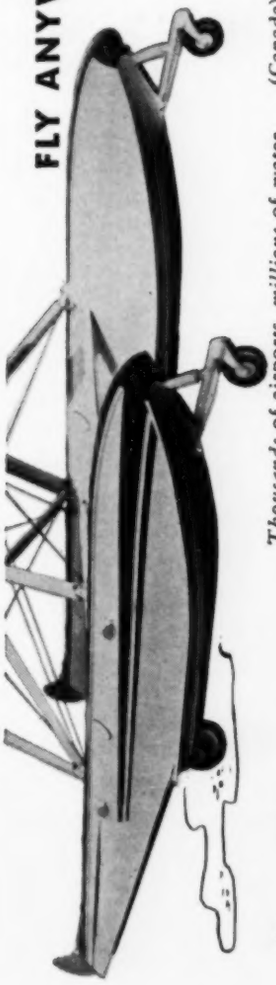

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to get hangars and shops and structures for general aviation business purposes, despite the fact that the government can not participate in the construction of such facilities. The way that comes about is as follows:

"If the needed general construction program, including land purchases for runways and approach clearances on a given airport, amounts to three million dollars over a period of years, and if that amount is about the limit of what the owning agency can finance, then there is little hope for any money to build structures for general aviation, no matter how great the demand and how convinced the officials of the owning agency are with respect to the need for such buildings.

"However, with an assured program of federal aid, whether it will be sufficient or not to defray fifty per cent of the cost of the program, every bit of the federal aid which is granted to the sponsor releases that same amount of money for other improvements on the airport, provided general aviation can convince the sponsor's officials that such improvements are worthwhile investments. That is up to the people who feel as does the man who wrote you that letter.

"Federal aid for eligible items lightens the cost burden to the owning agency to a degree that funds remain which may be judiciously used for purposes which are not eligible for federal aid and hangars and shops are in that category. The principle advanced holds good whether the program of necessary improvements requires three million dollars or one hundred thousand dollars. I don't believe any fiscal plan for new airport construction or the improvement of existing airports by any owning agency should be considered complete unless some funds are designated for necessary hangar and shop construction."

And what if the city fathers won't listen, we asked. That brought an answer from one of the best known of the older men in the airport management business:

"I agree with what has been said but, if you don't mind, I'd like to point out one other thing that has to do with filling the need for such buildings. It is a mighty nice situation if you can get your municipality to provide buildings for your operators and for the storage of aircraft owned in your city or passing through as itinerants. Such structures are good investments and pay themselves out over a reasonable period of years. That applies, in my belief, to well-designed larger structures and to individual hangars as well.

"On the other hand, let's not forget a principle which should always be given consideration among the policies intended to advance general aviation on public airports. That is a policy of encouraging the investment of private capital in the construction of buildings for occupancy or rental purposes. I think we can expect in the coming years a desire on the part of dealers in aircraft and operators of various services to occupy types of structures with service or display features not falling within the general classification of buildings likely to be built with public funds.

"In a sense such buildings will be specialized types. So long as they fit in with the master plan and so long as the uses to which they will be put fall within the scope of services desirable for that airport, there seems to be no sound reason for policies to work against such private construction on leased ground.

"The policy of permitting such leases for private construction also provides a means of augmenting the general aviation capacity of public airports when a period is reached when public money is not available."

As we travel from time to time, we see a batch of new T-hangars in this spot and a new general storage hangar in that one. Gradually the lack of hangars is being filled but not rapidly enough generally. The roots of any hangar shortage lie in the particular community. If local aviation does not make its needs known or try to work out a solution with public or private financing, it may expect that shortage to continue.

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Competition from Expressways

BIGGEST competitor to the local service airlines is the private auto. The airlines capitalize on safety, speed and comfort but their speed suffers from (a) lack of schedule frequency which means delay in waiting for a plane and (b) driving time to and from the airport. Auto driving time is improving with better roads. Here's an example FLIGHT MAGAZINE found in studying the results of operations over a new super highway between Oklahoma City and Tulsa:

Airline distance between the airports at these leading Oklahoma cities is 111 miles. Super highway distance between the two downtown areas is just about the same and has cut the driving time by one hour and 30 mins. Airline traffic between the two cities steadily increased in the four years between 1949 and 1952, ranging from 1,823 passengers for September, 1949, to 2,040 for the same month a year later and 2,576 for September, 1952. But then the super highway, a toll road, was opened for business. It dealt airline business a staggering blow, the figures showing that airline traffic dropped to some 924 passengers for September, 1953 — a 60% decline.

Super highways are a challenge to the local service airlines, which must not only protect their present traffic picture but improve it. Coupled with the expressways to make auto driving a factor is a large increase in the number of air-conditioned autos. The long, hot miles are getting cooler, cleaner and more comfortable — as well as shorter.

The Operating Day

Unlike trunk airlines, which operate around the clock, the short-haul locals have well-defined opening and closing hours. Analysis of scheduling in the July Official Airline Guide shows that the local service "day" is generally confined to the period between 6 a. m. and midnight.

Only 3 locals (Piedmont, Southwest and Trans-Texas) begin flights before 6 a. m. and only 3 operate after midnight (Bonanza, Ozark and Piedmont). Of the 512 local airline flights scheduled on week-days, only 4 originate before 6 a. m. and 38 before 7 a. m. At the other extreme, 24 originate after 9 p. m.

Piedmont has the longest working day — 5:05 a. m. to 2:48 a. m., a 21-hr.-43-min. "day." Bonanza is next, operating from 6 to 2:10 a. m. The average day for all locals is 17 hrs. 27 mins. Shortest is Allegheny's 15 hrs. 31 mins.

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Mrs. Carey Kurth Gordon Flies TTA To Dallas

Mrs. Carey Kurth Gordon of Kerrys, accompanied by her daughter Gayle Ann, flew to Dallas last week-end to visit friends.

As many of her friends are aware, in addition to her talents as a concert pianist and her interests in civic and cultural activities, Mrs. Gordon is also an ardent aviation enthusiast.

Seated comfortably before an open, friendly fireplace, Mrs. Gordon was not in the least hesitant in expressing her enthusiasm for flying, the convenience it provides, and the excitement of flying which, contrary to the belief of many, she holds is not a thing of the past.

"But I'm not the only member of my family who enjoys flying," she continued, "My children have grown up on 'Trans-Texas'," she

Dr. Denman To Fly To Mexico

Dr. L. H. Denman, one of Lufkin's most well-known and respected citizens, is planning a trip to Mexico City for his vacation this summer.

something I'll never forget. People who haven't experienced it, in my opinion, are really missing something."

Once started talking about modern aviation, in his enthusiasm for flying, Dr. Denman almost couldn't seem to stop.

"So you don't have to tell me about people being afraid to fly. I know there are still lots of them around, some right here in Lufkin, too. But if more of them understood more about all of the safety regulations and precautions that are taken not only on the planes but on the pilots, they'd soon realize how groundless their fears are. I know for a fact, for instance, that these Trans-Texas pilots have thorough check-ups every six months, at least, and the planes get the most particular treatment you can imagine."

Dr. Denman is, of course, in a position to know about these things, being a member of the Texas State Board of Medical Examiners and being familiar with federal, as well as state, require-

Local Appeal

To attract interest in newspaper ads, Trans-Texas Airways uses testimonial ads which picture prominent local persons and discuss their use of the airline. Segments from two such ads are shown here.

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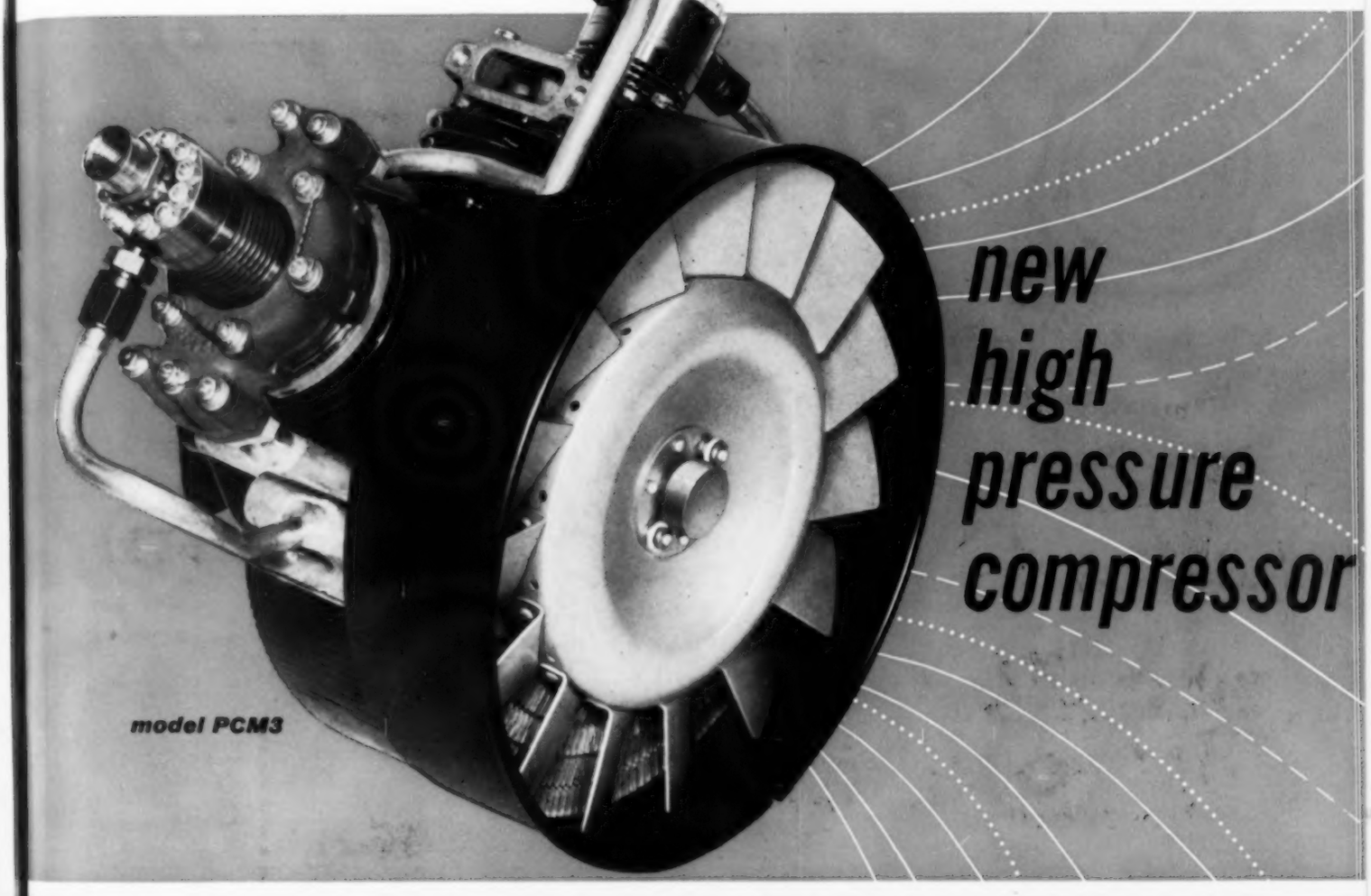

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